



# ASEAN REGIONAL FORUM

**Seminar on International Security Implications of Climate Change**

**Brussels, 18-19 November 2010**

**Session 2.1: Challenges, Threats, Risks related to Climate Change**

**Session 3.2: The Way Forward: A View From Civil Society**

## **Potential Societal Impacts of the Physical Effects of Climate Change**

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UNIVERSITY  
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Institute for Environment  
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**Freie Universität  Berlin**



# Contents: Parts 1 & 2

## Part 1: Opening Remarks (Morning)

1. EU-ASEAN Context and Theme of the Talk
2. Natural Variability and Anthropogenic Climate Change
3. Earth/Human System & PEISOR Model
4. Global Physical Effects to Climate Change
5. Rethinking of Security and Climate Change
6. Regional Relevance for ASEAN Region
7. Potential Future Societal Impacts

## Part 2: Policy Proposals in the ARF Context (Afternoon)

8. Improving Knowledge Base in SE Asia
9. Linkages of Global Climate Change & Security in SE Asia
10. Intensifying the Dialogue in ARF Context

# 1. EU-ASEAN Context (**relevance**)

- Nuremberg Declaration: EU-ASEAN Enhanced Partnership
- Joint Declaration of ASEAN-EU Commemorative Summit
- **Plan of Action to Implement Nuremberg Declaration**

## **1. Political and Security Cooperation**

1. Deepen political dialogue and enhance regional cooperation
- 1.2. Deepen security cooperation (crisis management, conflict prev.)
- 1.3. **Traditional and non-traditional security issues**

## **2. Economic Cooperation**

## **3. Cooperation on Energy Security, Climate Change**

**Environment/Climate change**

- **Mainstreaming climate change into sustainable development policy**

## **4. Socio-Cultural Cooperation**

**Disaster Management and Emergency Response**

**Science and Technology**

## **5. Development Cooperation**

# 1.1. Theme of the Talk

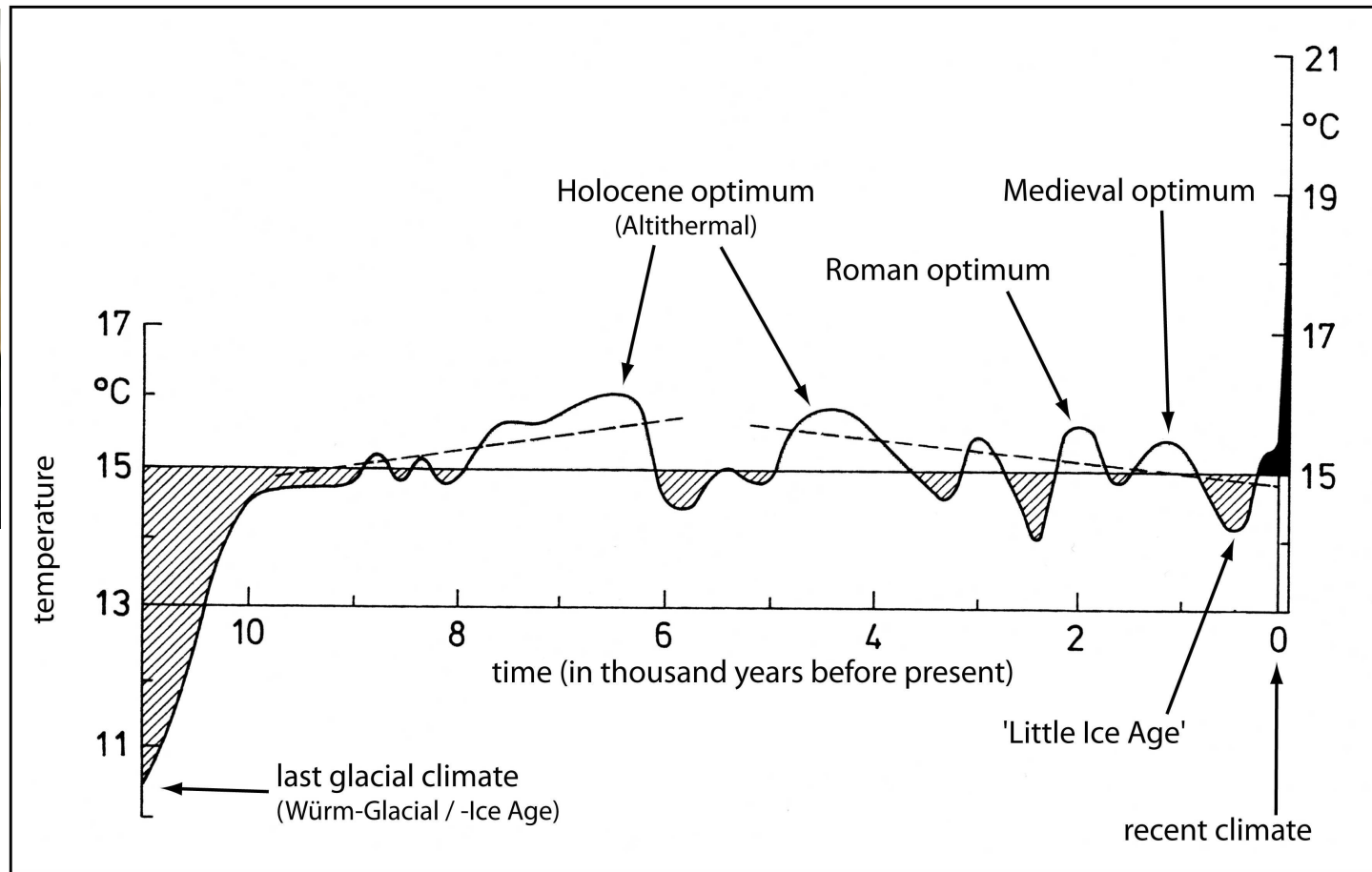
- **Physical Effects of Linear Climate Change**
  - Temperature increase: sectoral impacts: agriculture
  - Sea-level rise: coastal regions and deltas (Vietnam)
  - Precipitation change: more (storms) or less precipit.(drought)
  - Extreme Weather Events (cyclones, floods, drought, fires)
- **2 Possible Tipping Points of the Climate System**
  - Albedo Tibetan Plateau: Melting of Glaciers in Himalaya
  - Change in Indian Monsoon
- **Societal Impacts of Physical Effects of CC**
  - People's Movement (Displacement, Urbanization, Migration)
  - Domestic Crises
  - Conflicts (domestic on scarce resources: water, soil & food)
  - **Conflict Avoidance and Prevention of Climate Conflicts**

# 2. From Holocene to Anthropocene:

## Natural variability - anthropogenic climate change



**Paul Crutzen,**  
**Nobel Laureate for**  
**Chemistry (1995)**  
**Ozone depletion**

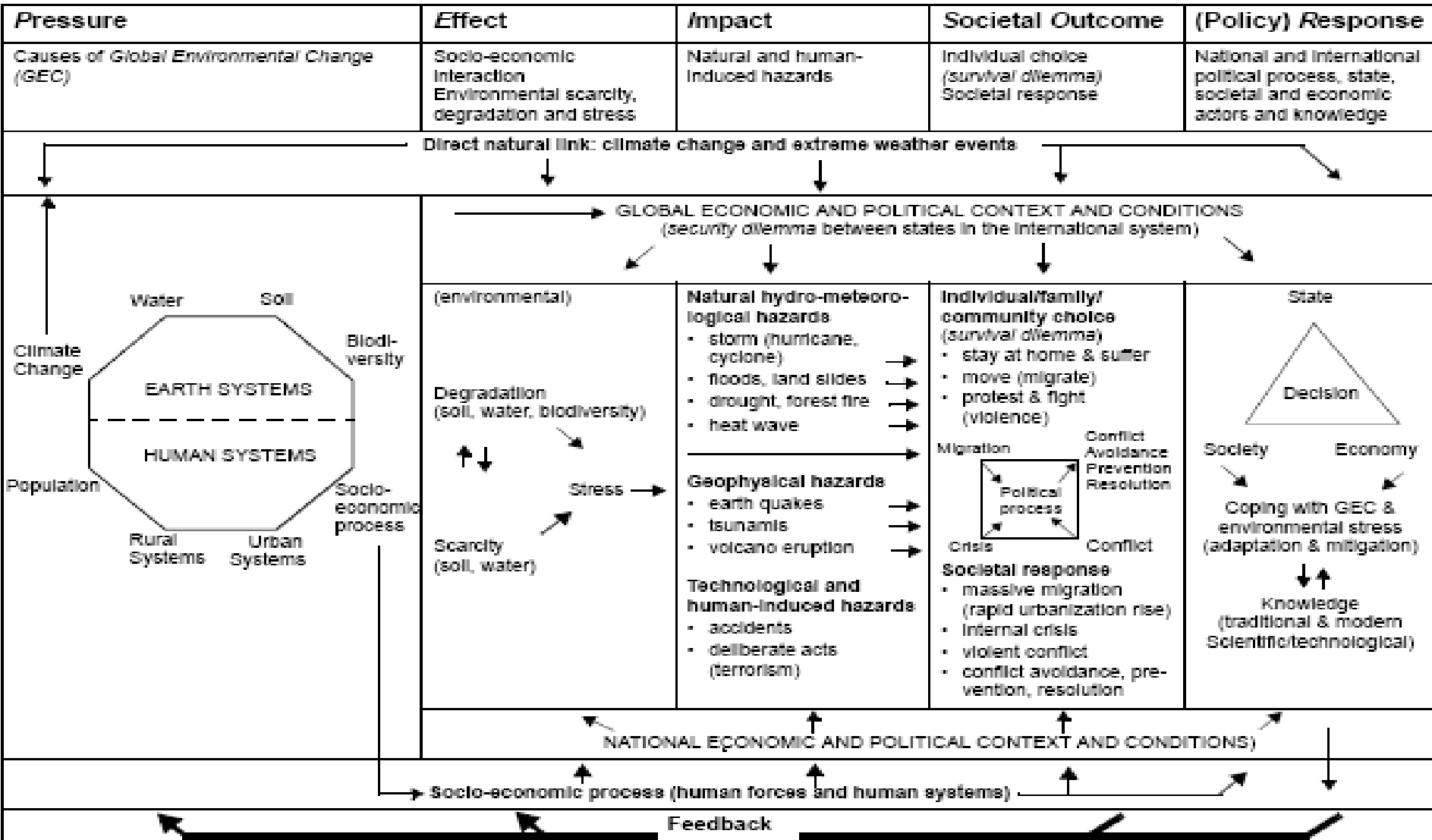


In Geology/geography: **Holocene** era of earth history since end of glacial period (10-12.000 years ago, Anthropocene, since industrial revolution (1784, J. Watt's invention of steam engine: anthropogenic climate change: burning of coal. oil, gas → GHG increase

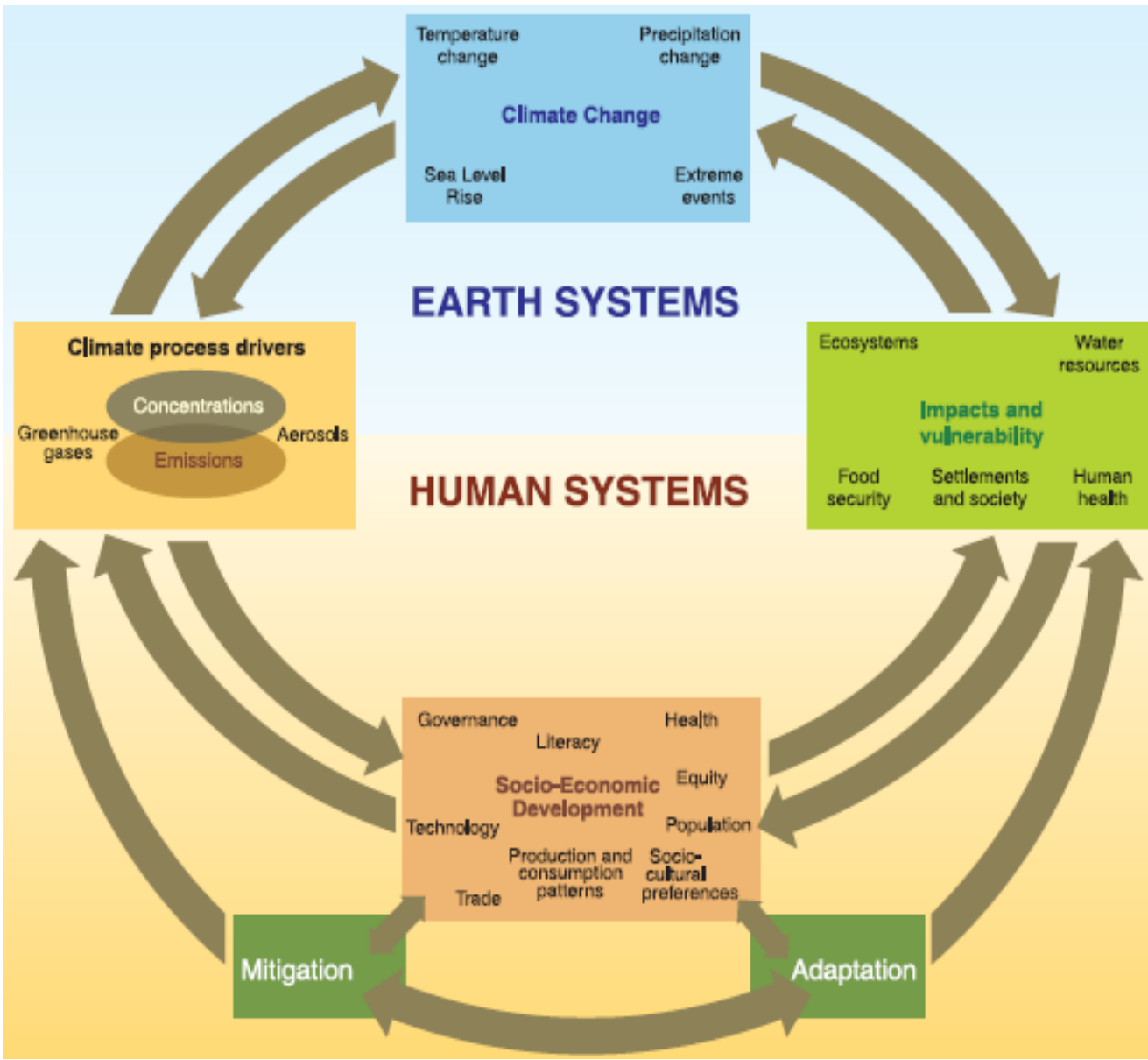
**Natural variability of climate vs. anthropogenic climate change**

# 3. Earth/Human System & PEISOR Model

## Stimulus response models: OECD, UNCSD, EEA



# 3.1. Pressure: Earth & Human Systems



**Interaction within climate system:**  
**Linear, non-linear, chaotic** (tipping points of the climate system): crossing of thresholds:

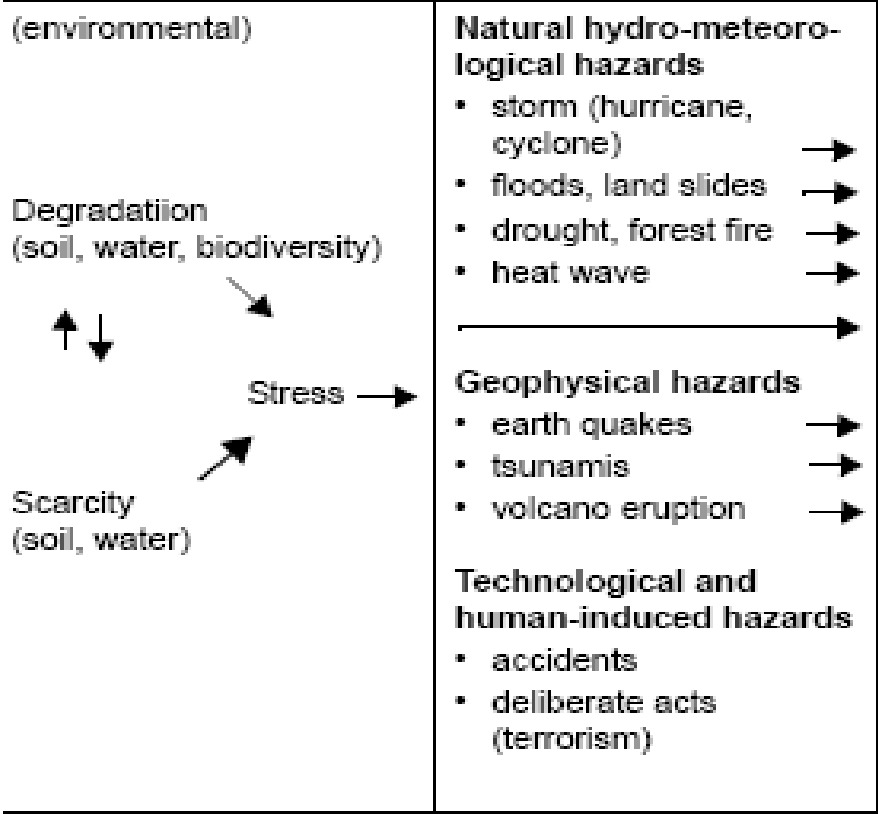
- melting of glaciers in Himalaya,
- Indian Monsoon

**Physical effects of climate change:**

- Temperature increase
- Sea-level rise
- Precipitation change
- Extreme weather events (hazards) <sup>7</sup>

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

Direct natural link: climate change and extreme weather



## 3.2. E: Effect & I: Impact

### • E: Environmental security debate of 1990s

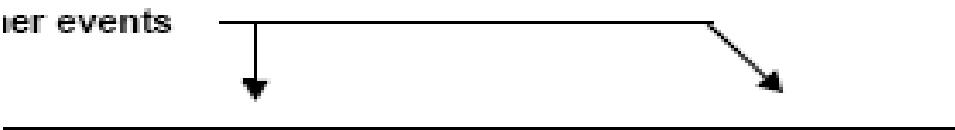
- Toronto school
- Swiss school (ENCOP):
- **Env. scarcity > degradation > environmental stress**

### • I: climate change -> extreme weather events

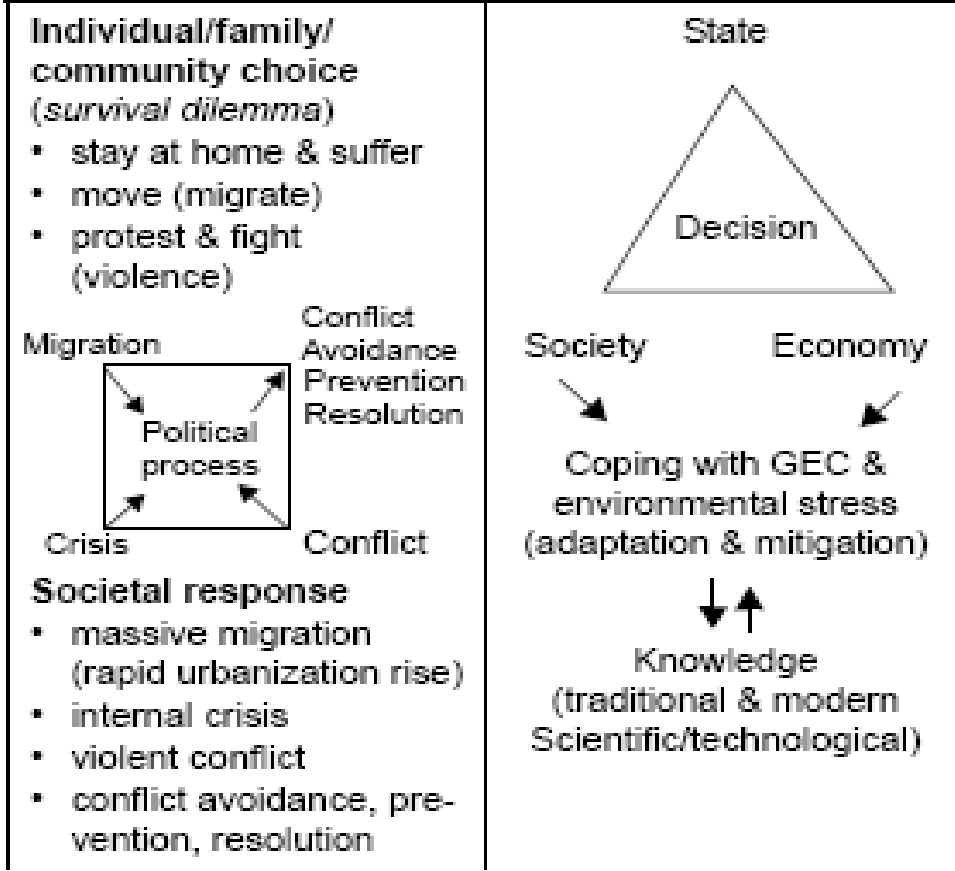
- Hydrometeorological hazards
  - **Drought (wind erosion)**
  - Heat waves
  - **Forest fires**
  - **Storms (cyclones)**
  - **Flash floods & landslides (wind & water erosion)**



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



**POLITICAL CONTEXT AND CONDITIONS**  
(events in the international system)



### 3.3. SO: Societal Outcomes

- Individual level (choice)
  - Human security perspective
  - **Survival dilemma of humans**
- State/society level
  - **Hunger**, famine
  - **Migration** to urban slums
  - Rural-rural migration
  - **Transborder migration**
    - Seasonal vs. permanent
  - **Crises**: domestic
  - **Conflicts**:
    - Peaceful protests
    - Violent clashes
  - **Complex emergencies**
    - **Hazards & conflicts**

# 4. Global Physical Effects to Climate Change

## Climate Change Impacts: Temperature & Sea level Rise

- ❖ Global average temperature rise in 20<sup>th</sup> century: **+ 0.6°C**  
**for Asia, 1970-2000 (1.0 °C)**

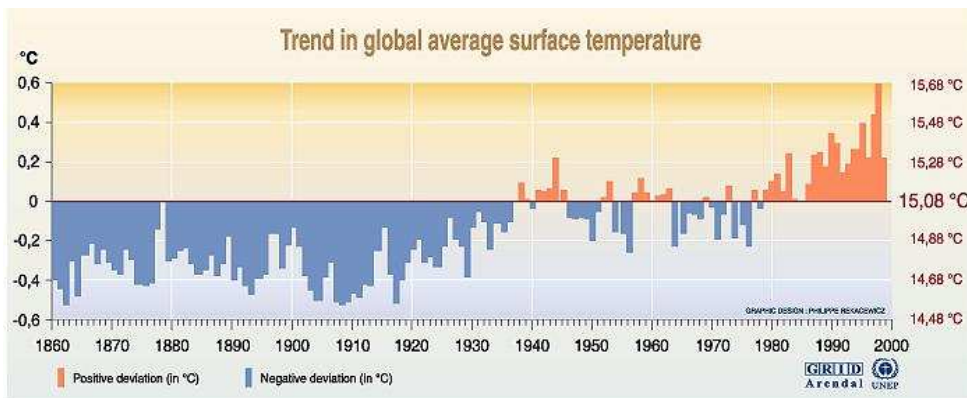
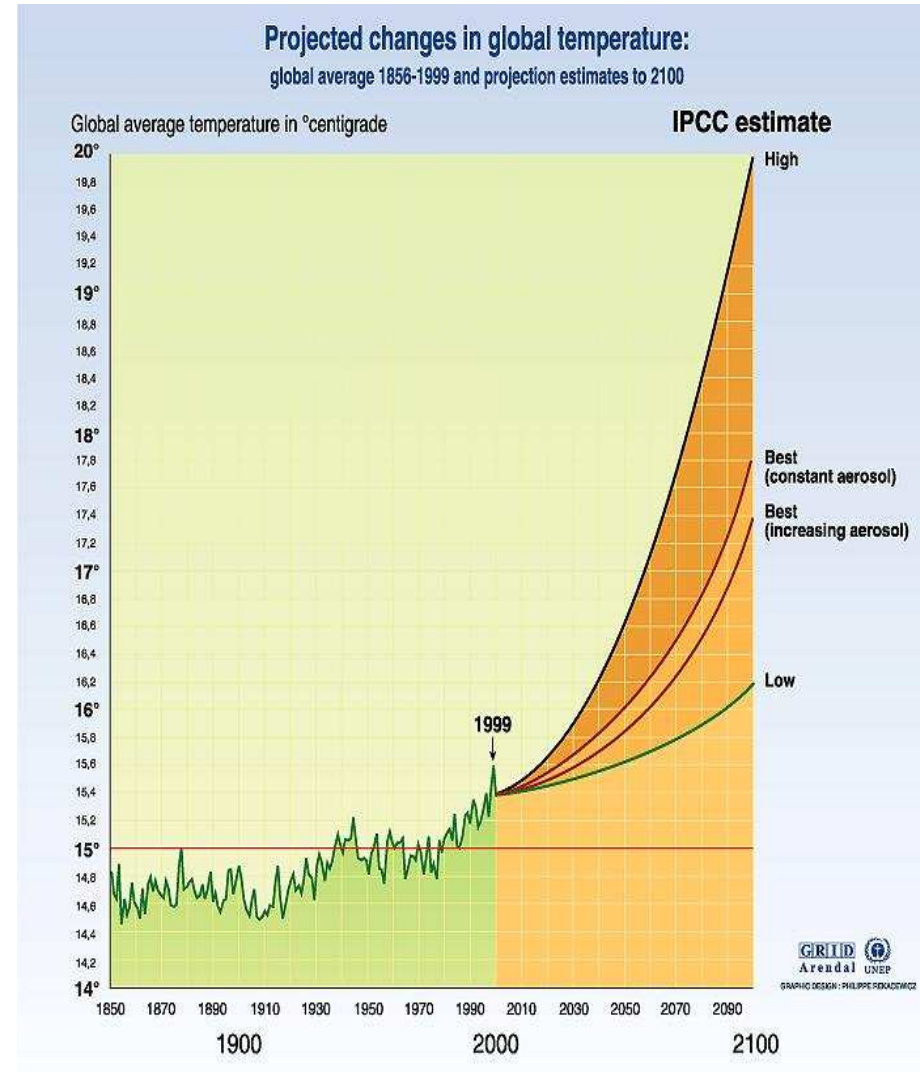
## Projected temperature rise:

- ❖ TAR (1990-2100): **+1.4-5.8°C**
- ❖ AR4 (07): **+1.1-6.4 (1.8-4)°C**

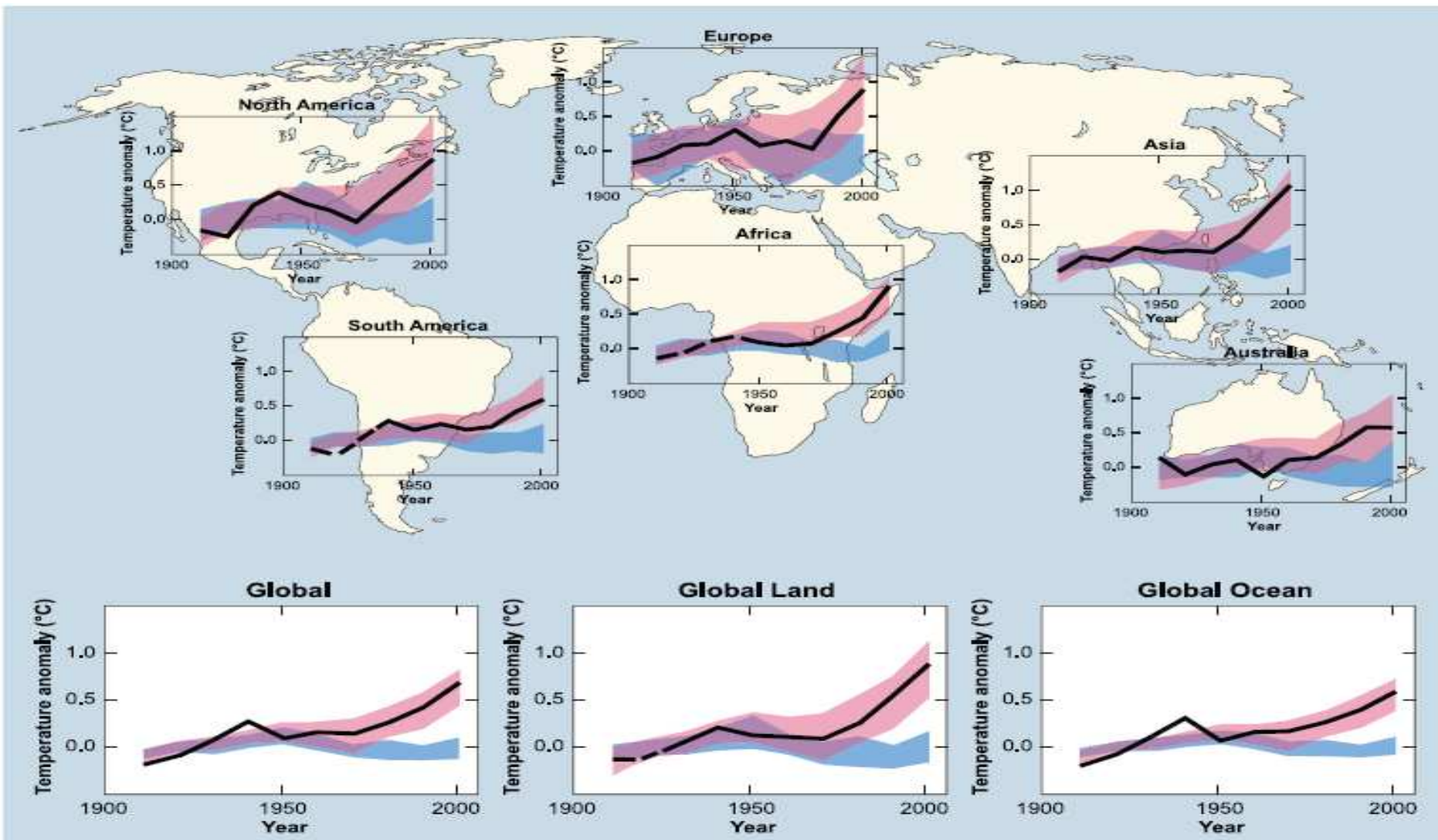
Sources: IPCC 1990, 1995, 2001, 2007

## Sea level Rise:

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



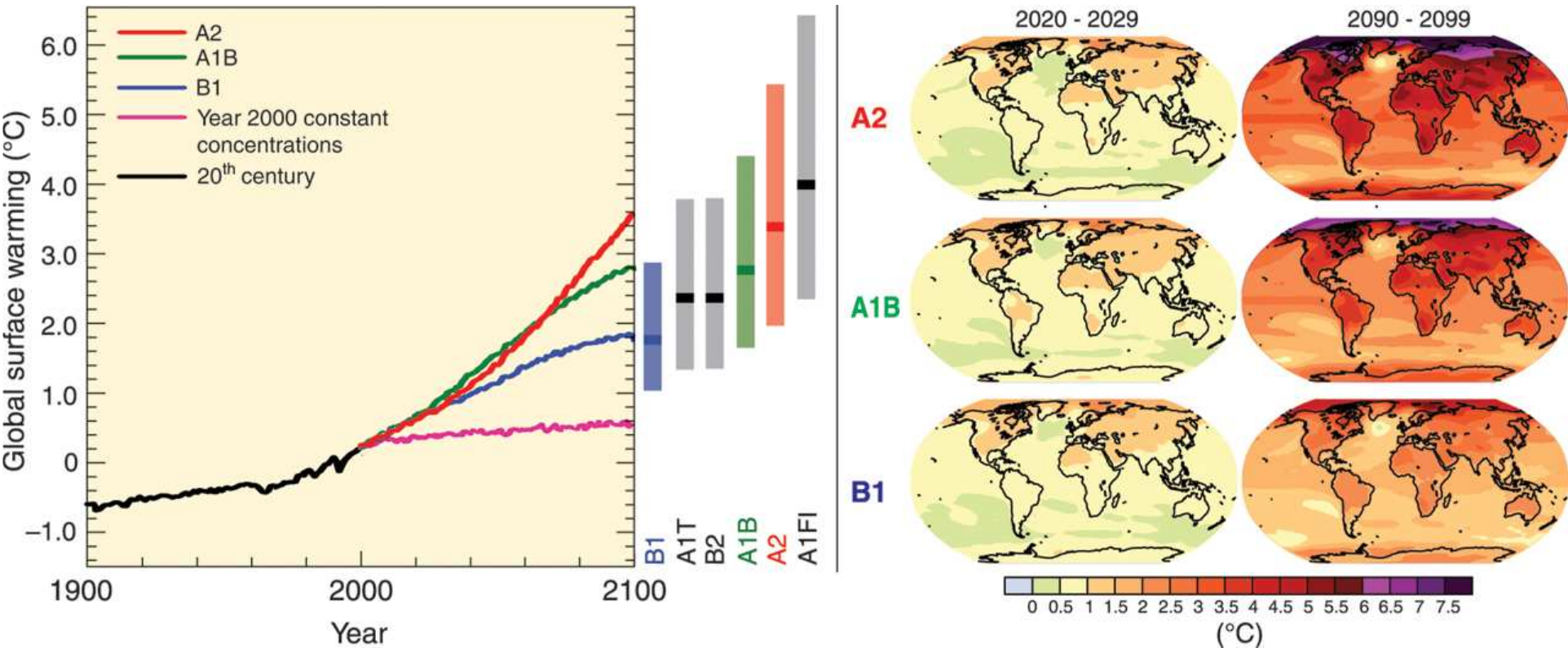
# 4.1. Global and Regional Change in Temperature (IPCC 2007, WG 1, AR4, p. 11)



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

observations

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

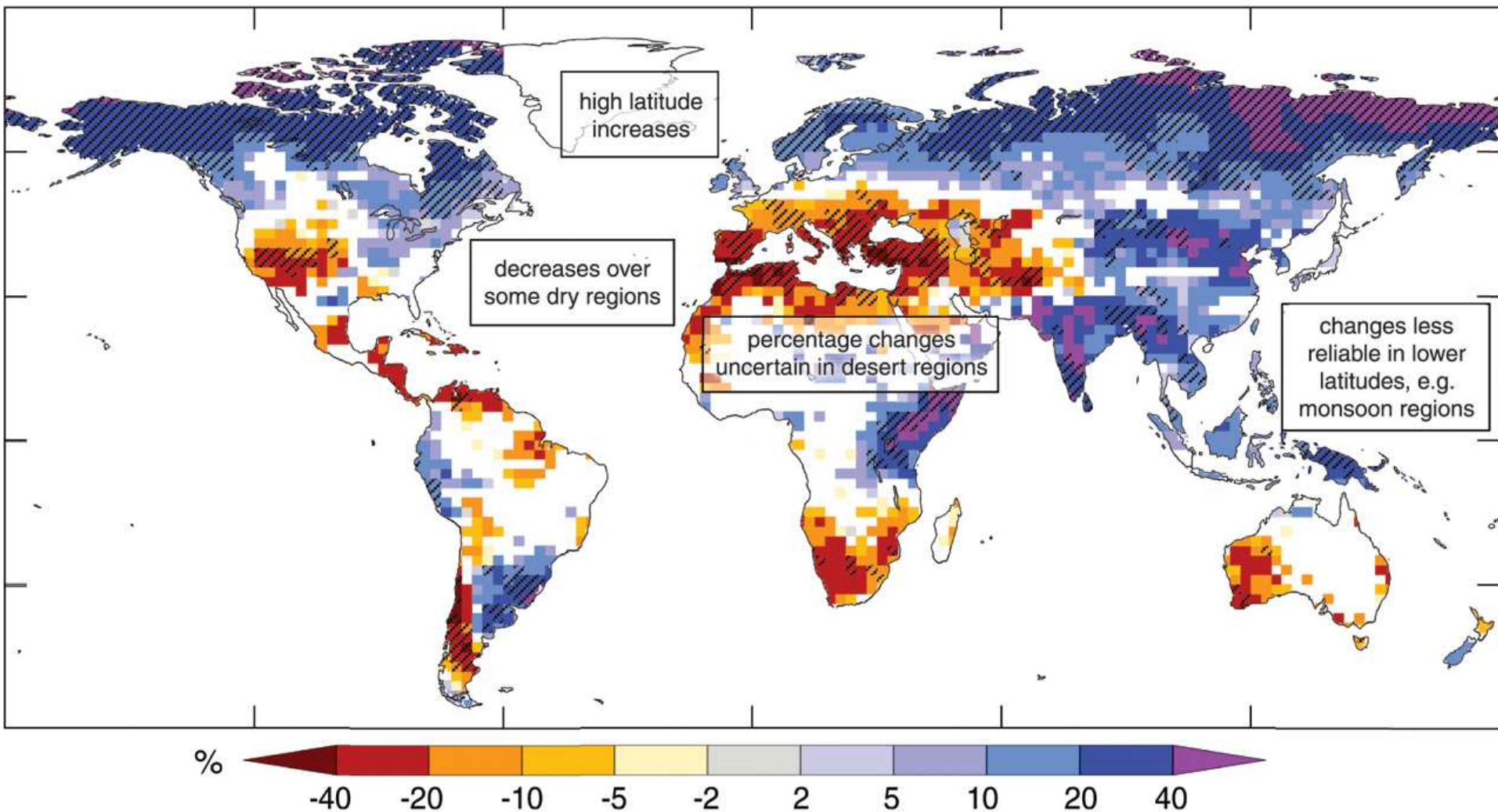


- **Three Regimes for Temperature Increase**
  - +2°C: **certain**: EU & G-8 Stabilization goal (Copenhagen COP 15)
  - +4°C: **probable, without immediate Stabilization Measures**
  - +6°C: **possible** (business as usual) (**catastrophe scenario**)

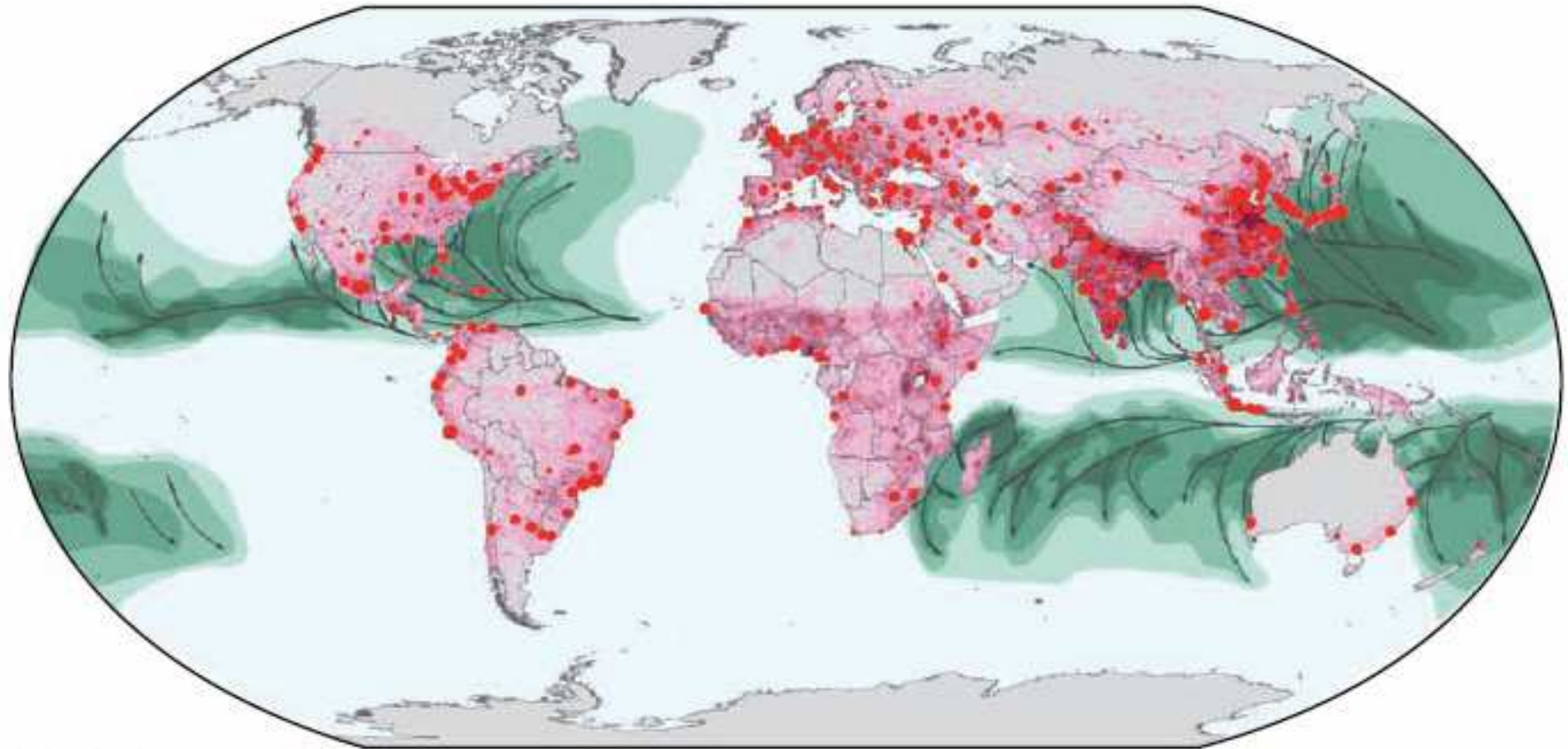
## 4.3. Projected Increase of Sea Level Rise (IPCC chair, Pachauri, 2008)

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

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



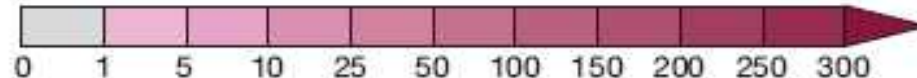
# 4.5. Tropical Cyclones: Threat to Megacities



Tropical cyclones:  
rising intensity and frequency



Population density, 2004



Inhabitants [millions]

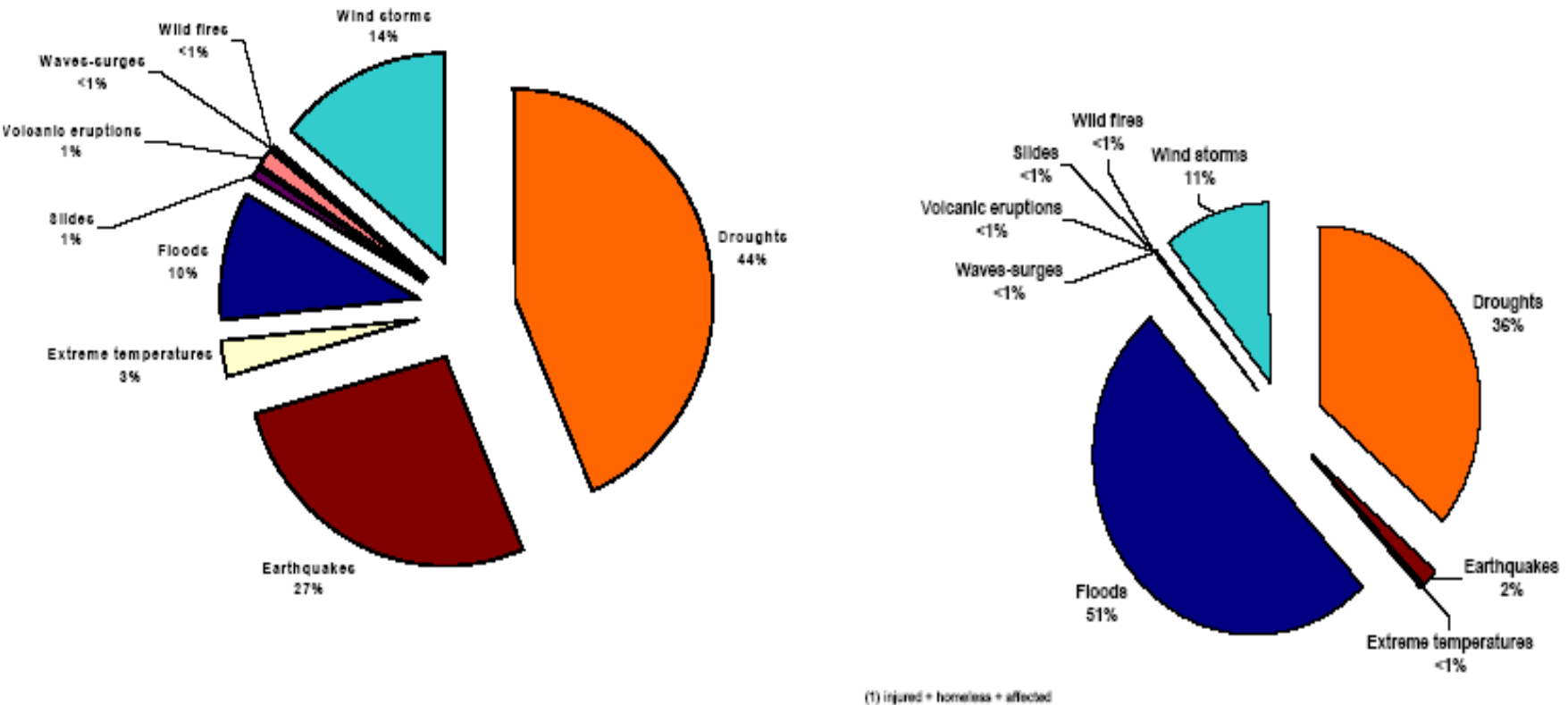


**Figure 6.4-1**  
Tropical cyclone threat to urban agglomerations.  
Cartography: Cassel-Gintz, 2006.  
Source: WBGU

# 4.6. Natural Hazards Globally (1974-2003):

**Reported Death: 2.066.273 persons**

**Affected persons: 5 076 494 541 persons**



Source: © Hoyois und Guha-Sapir (2004)



# 5. Rethinking of Security and Climate Change

## 1st thesis: 3 reasons for security reconceptualization

- End of the Cold War (fall of Berlin Wall, 9 Nov. 1989) or 11 Sep. 2001: 3rd attack on USA (1812, 1941) with different consequences
- Globalization: New opportunities and threats:
  - New actors: of personal violence (9/11/2001) terrorist networks (hate)
  - New processes: free financial flows: global financial & economic crisis, triggered structural deprivation (greed)
- Main focus of my talk: Transition from the Holocene to the Anthropocene: climate change as a security danger & concern

2nd thesis: Since 1994 a major shift has occurred from state-centred to human security concepts! UNDP; CHS (2003)

## Three trends in reconceptualisation of security since 1990:

- **Widening** (dimensions, sectors), including **environmental security**
- **Deepening** (levels, actors): from state to **human security**
- **Sectorialisation** (energy, food, health, water, soil, **climate security**),

# 5.1. New Security Concepts: Environmental & Human Security

Anthropocene (human-induced climate change)

- **Scientific recognition**: 19th century: Tyndall, Arrhenius & since 1970s
- **Political issue since Rio Earth Summit** (1992), UNFCCC, Kyoto Protocol (1997). Copenhagen Accord (2009), post KP regime (2012-2020)
- Since 2000-2007: security issue (**securitization**)

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

## 5.2. Three Security Debates on Climate Change

- **Climate Change & International Security**
  - EU process: Joint report of Commission & Council (14 March 2008), European Security Strategy (Dec. 2008)
  - UN Security Council Debate: 17 April 2007
  - UN GA resolution of 2 June 2009
  - UN Secretary General Report of 11 September 2009
- **Climate Change & National Security** (primarily USA)
  - 2007 several reports
  - 2008: National Intelligence Council (CIA): World by 2025
  - 2009: NIC: scenario & conference reports (SE-Asia)
- **Climate Change & Human Security**
  - IHDP-GECHS (1999-2009): Seminar in Oslo in 2005
  - HSN: Greek Presidency (May 2008)

# 6. Regional Relevance for ASEAN Region



What are possible security impacts of 4 physical effects for ASEAN?

- Temperature
- **Sea level rise**
- Precipitation
- Natural hazards

What are likely conflict constellations?

What should be done jointly to avoid/prevent security threats for the region, 10 states, people and human beings?

# 6.1 Knowledge Base: CSIS & SE Asia

## On physical effects

- National communications on climate change
- IPCC: Assessment of peer-reviewed scientific knowledge
  - IPCC Report on Regional Impacts of CC (1998): on Tropical Asia
  - TAR (2001): chapter 11: „Asia“ (pp. 535-590)
  - AR4 (2007): chapter 10: „Asia“ (pp. 469-506)
  - **AR5 (2014): in preparation (basis: peer-reviewed literature), 2011ff.**
    - **Chapter 11: Human Health, Well-Being, and Security**
    - **Chapter 12: Human security**
    - **Chapter 21: Regional context ( Cross-regional hotspots**
    - **chapter 24: Asia**

## On societal impacts: so far a research desideratum

- Discourse analysis: is not yet possible as it is too new
- Empirical case studies on the region:
- Causal analyses: totally lacking
- **Policy driven: Scenario analyses on South East Asia**
  - **EU Commission (studies by Adelphio Consult)**
  - **USA: National Intelligence Council of CIA (2 studies)**

# 6.2. National Communications on Climate Change of ASEAN countries

Countries	First (1-4)	UN-SG R.	IPCC,2001	IPCC,2007
Brunei	None		<p>WG I &amp; II: There are only very general references on tropical Asia but none on ASEAN and its two subregions</p> <p><b>North:</b> Mekong River countries: Myanmar, Thailand, Laos, Cambodia, Vietnam</p> <p><b>South:</b> Malaysia, Singapore, Indonesia, Brunei, Philippines</p>	
Cambodia	8.10.2002			
Indonesia	27.10.1999	CCIS, 2009		
Laos	2.11.2000			
Malaysia	22.8.2000			
Myanmar	None			
Philippines	19.5.2000			
Singapore	21.8.2000			
Thailand	13.11.2000			
Vietnam	3.12.2003			

## 6.3. Scenario Literature on SE Asia

### On societal impacts (scenario analyses)

- **Up to 2050:** For EU Commission: Adelphi Consult (later today)
- **Up to 2030: US-NIC: Battelle Memorial Institute (August 2009):** assessment of peer-reviewed scientific literature, model runs
  - Projected Regional Climate Change
  - Impacts on Human and Natural Systems
  - Adaptive Capacity
  - Specific Adaptive Capacity
- **For US-NIC: Centra Technology Inc. (January 2010):** focus on Geopolitical Implications (US national security perspective)
  - Social, political, economic challenges
  - Civil and key interest group responses
  - State responses
  - Regional implications
  - Overall foreign policy implications

# 6.4. Potential Societal Impacts of the Physical Effects of Climate Change

- **Physical effects:**

- Sea-level Rise (Chad Briggs, Adelphi)
- Temperature increase
- Precipitation change
- Extreme weather events

- **Societal Impacts**

- Migration (Philippe Boncour, IOM)
- Threats to human rights and human security (Prof. Sarmiento)
- Domestic and International Crises
- Domestic and International Conflicts (wars?)
- Domestic and International Conflict Avoidance & Prevention



# 6.5. Knowledge Deficiencies

## **NIC: Southeast Asia and Pacific Islands: Impact of Climate Change 2030**

- **In physical science research**
  - Inability of GCM to model regional climates
  - Uncertainties on changing monsoon activities due to nat. variability & anthrop.CC
  - Difficulty to predict precipitation on a country specific case
  - Lack of medium-term climate predictions
- **In social science research:**
  - Partial understanding of important factors affecting vulnerabilities, resilience and adaptive capability
- **Important research factors are still unaccounted for**
  - E.g. in carbon cycle modelling
  - Ecosystem research models
- **Shortcomings of Social Models**
  - Models to simulate consumption without focus on feasibility & implementation
  - Lack of knowledge on human motivations
- **Conclusion: Research on CC in SEA: piecemeal, discipline, sector, political implications considered separately from physical effects.**
- **NIC proposes: integrated research into energy-economic-environmental- political conditions & possibilities**

## **Adelphi: Knowledge needs:**

- More research, interconnectedness of crises, risk management methods

# 6.6. Population Change in SE Asia (1950-2050)

Source: UN Populations Division (2009)

Countries	1950	2010	2030	2050
Brunei	48,000	407,000	547,000	658,000
Cambodia	4,346,000	15,053,000	20,100,000	23,795,000
Indonesia	77,152,000	232,517,000	271,485,000	288,110,000
Laos	1,666,000	6,436,000	8,854,000	10,744,000
Malaysia	6,110,000	27,914,000	35,275,000	39,664,000
Myanmar	17,158,000	50,496,000	59,353,000	63,373,000
Philippines	19,996,000	93,617,000	124,384,000	146,156,000
Singapore	1,022,000	4,837,000	5,460,000	5,221,000
Thailand	20,607,000	68,139,000	73,462,000	73,361,000
Vietnam	27,367,000	89,0029,000	105,447,000	111,666,000
SE Asia	175,905,000	589,615,000	706,492,000	765,966,000

# 6.7. IPCC: Temperature Increase & Precipitation Change TAR (2001) AR4 (2007)

## TAR (2001) Temperature Change (°C), p. 546

2020s			2050s			2080s			The values are below the averages for Asia & South Asia
An-nual	Win-ter	Sum-mer	An-nual	Win-ter	Sum-mer	An-nual	Win-ter	Sum-mer	
1.05	1.12	1.01	2.15	2.28	2.01	3.03	3.23	2.82	

## TAR (2001) Precipitation Change (%), p. 546

2020s			2050s			2080s			The values are below the averages for Asia & South Asia
An-nual	Win-ter	Sum-mer	An-nual	Win-ter	Sum-mer	An-nual	Win-ter	Sum-mer	
2.4	1.7	2.1	4.6	3.5	3.4	8,5	7.3	6.1	

## AR4 (2007) Change in Temperature & Precipitation, p. 480

2010-2039				2040-2069				2070-2099			
Temperature		Precipitation		Temperature		Precipitation		Temperature		Precipitation	
A1FI	B1	A1FI	B1	A1FI	B1	A1FI	B1	A1FI	B1	A1FI	B1
0.86	0.72	-1	1	2.25	1.32	2	4	3.92	2.02	6	4

# 6.8. Sea Level Rise as a Security Threat?

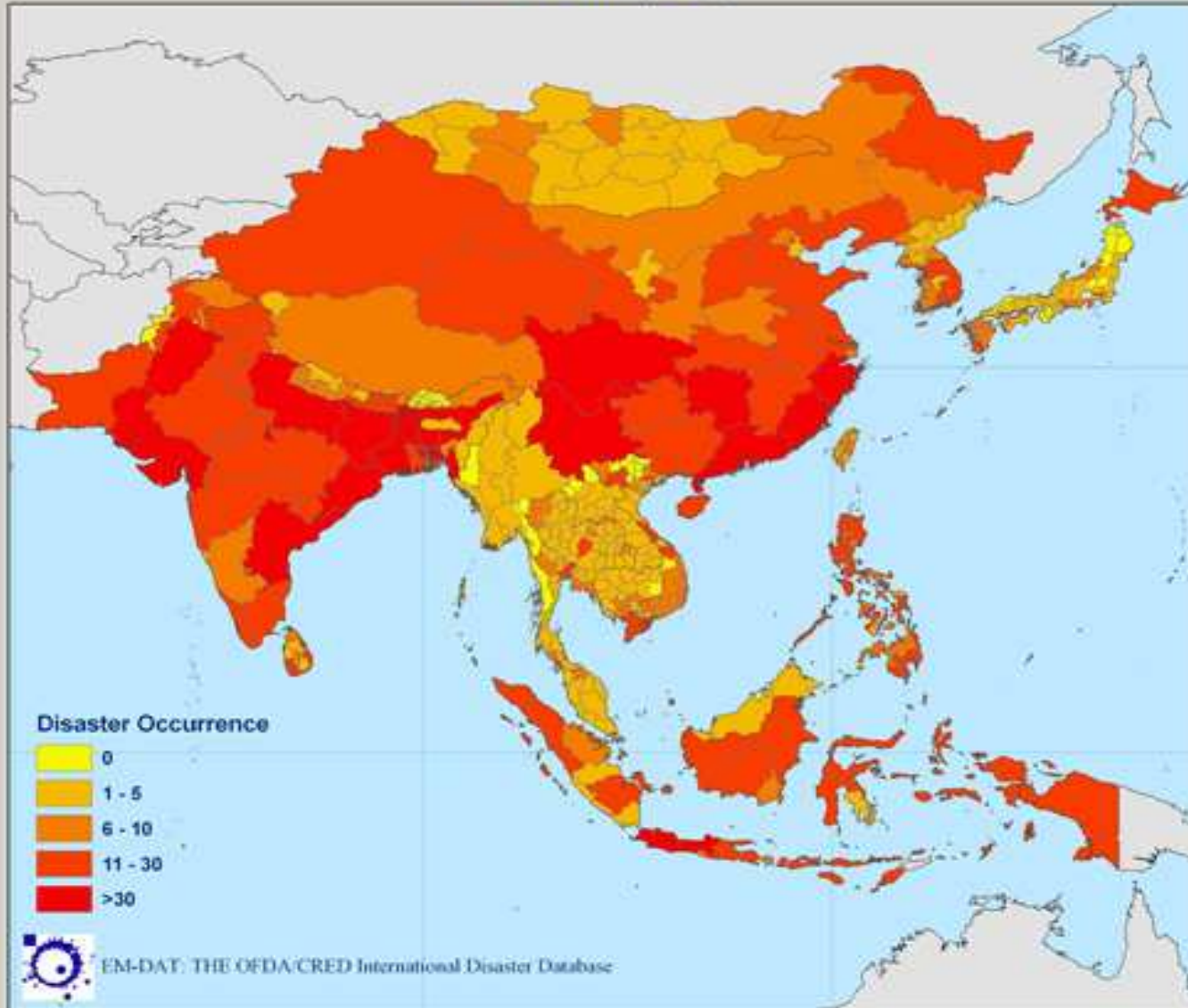
## TAR (2001: p. 569)

Country	SLR (cm)	Potential land loss		Population exposed	
		km <sup>2</sup>	%	million	%
Bangladesh	45	15,668	10.9	5.5	5.0
		<b>29,846</b>	<b>20.7</b>	<b>14.8</b>	<b>13.5</b>
India	100	5,763	0.4	7.1	0.8
Indonesia	60	34,000	1.9	2.0	1.1
Japan	50	1,412	0.4	2.9	2.3
Malaysia	100	7,000	2.1	>0.05	>0.3
Pakistan	20	1,700	0.2	n.a.	n.a.
<b>Vietnam</b>	<b>100</b>	<b>40,000</b>	<b>12.1</b>	<b>17.1</b>	<b>23.1</b>

**Vietnam is the most vulnerable country** to climate change due to sea-level rise in South East Asia. In South-East Asia food & fibre, biodiversity, coastal ecosystems, human health and land degradation are highly vulnerable to climate change while water resources and human settlements are moderately vulnerable.

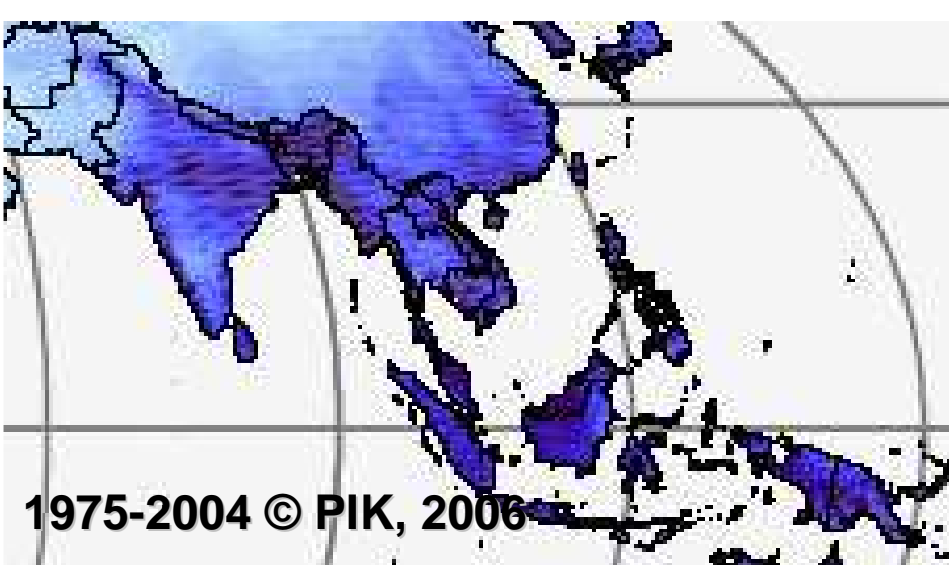
# 6.9. Natural Disasters in Asia (EMDAT)

Natural disaster occurrence by first administrative level boundaries:  
1975-2004 (Oct)

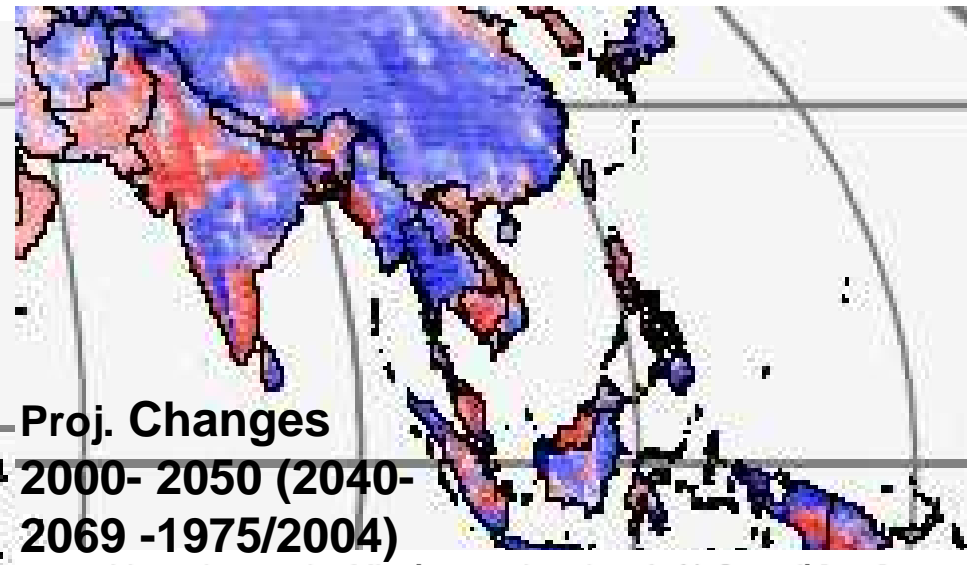
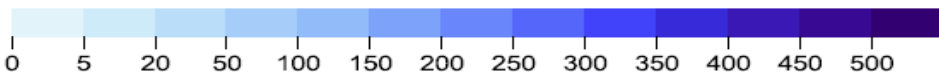


- SE Asia is not as highly affected by disasters than South & East Asia.
- But the ASEAN countries have been affected by many severe storms, floods but also by droughts & by a projected decline in crop yields.

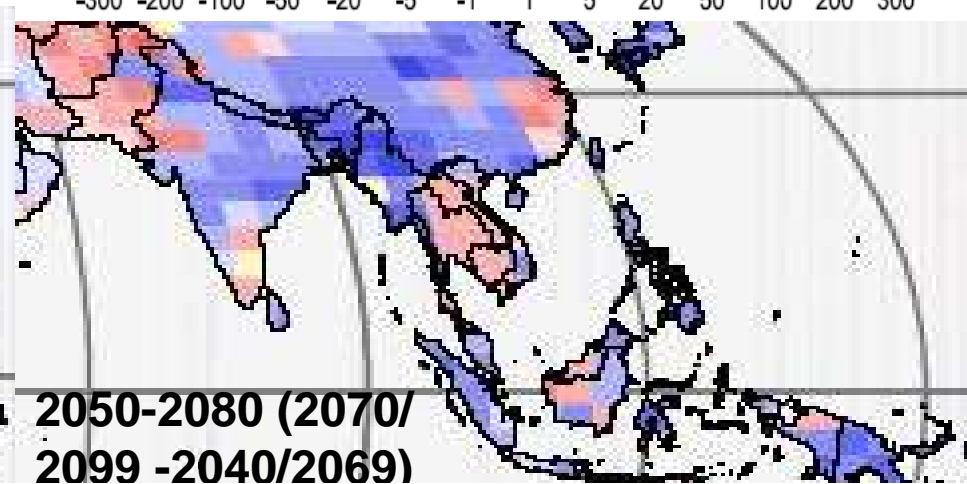
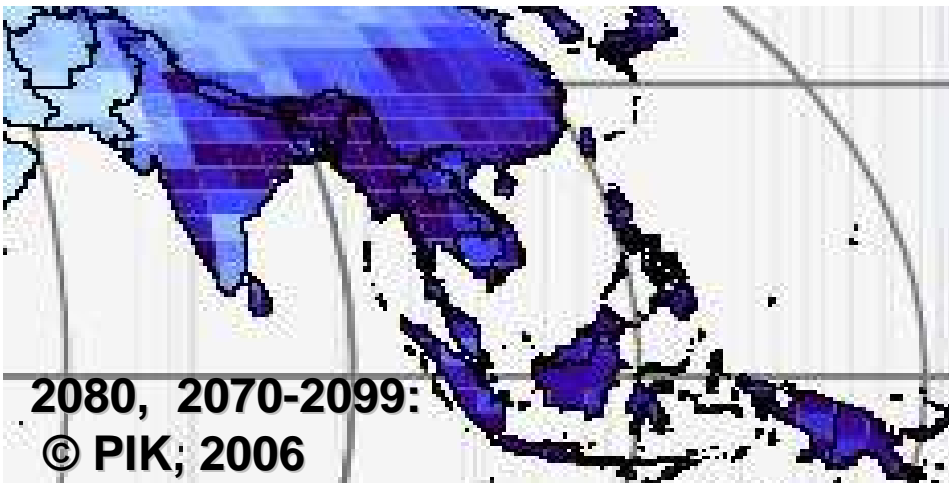
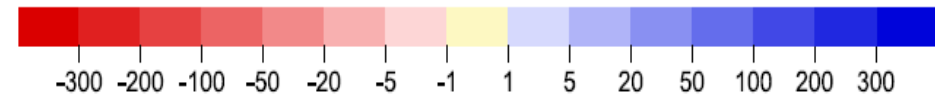
# 6.10. Potential Dangers by Flash Floods in South and Southeast Asia. Source: ©PIK 2006



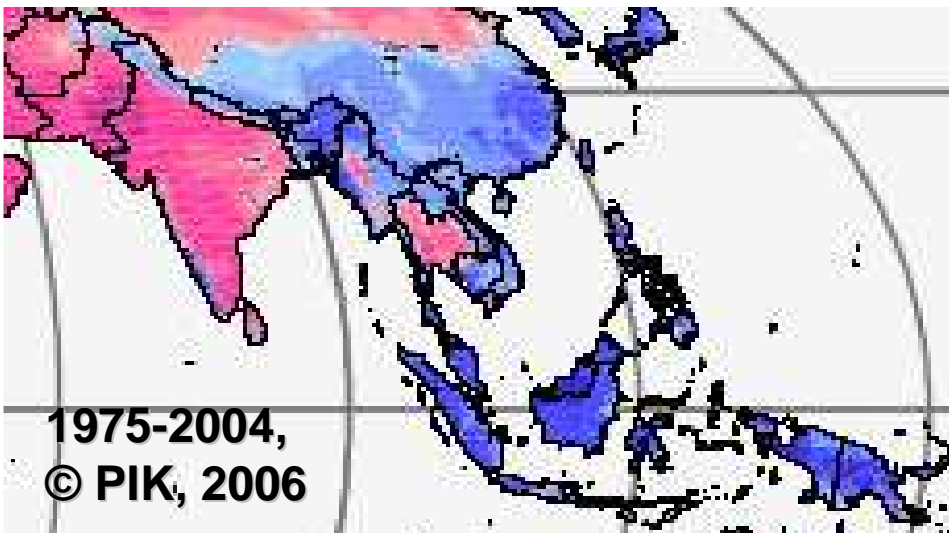
Mittel der Werte über dem 95% Quantil [mm]



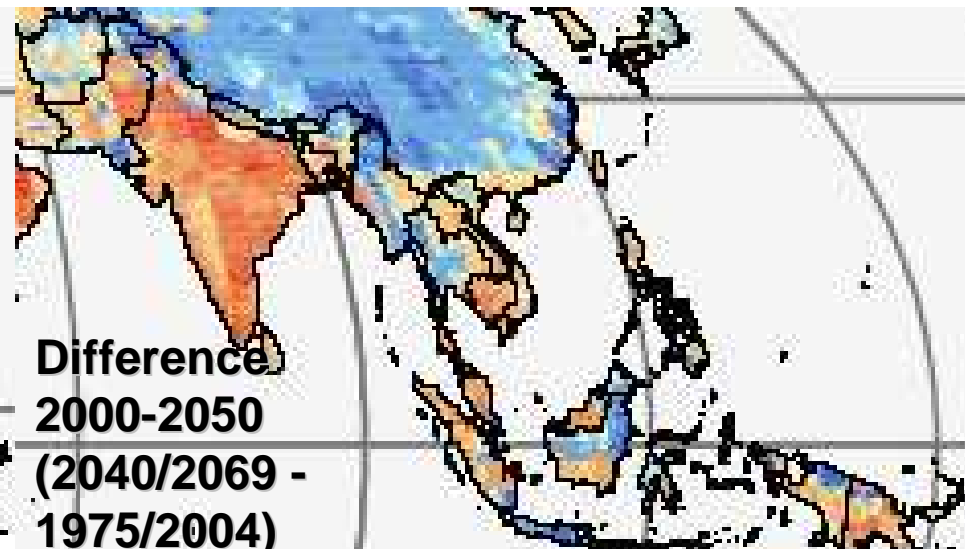
Veränderung der Mittelwerte über dem 95% Quantil [mm]



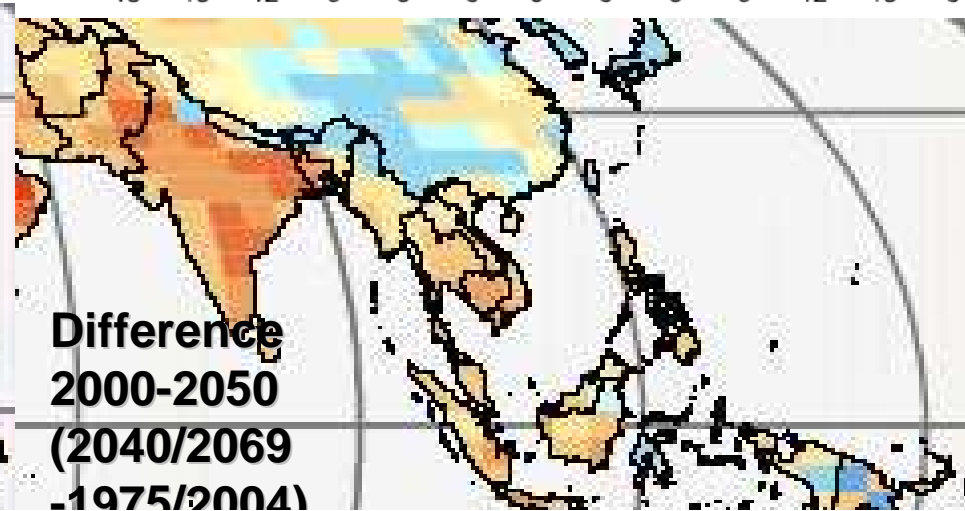
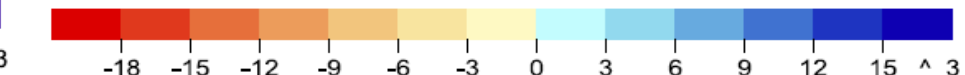
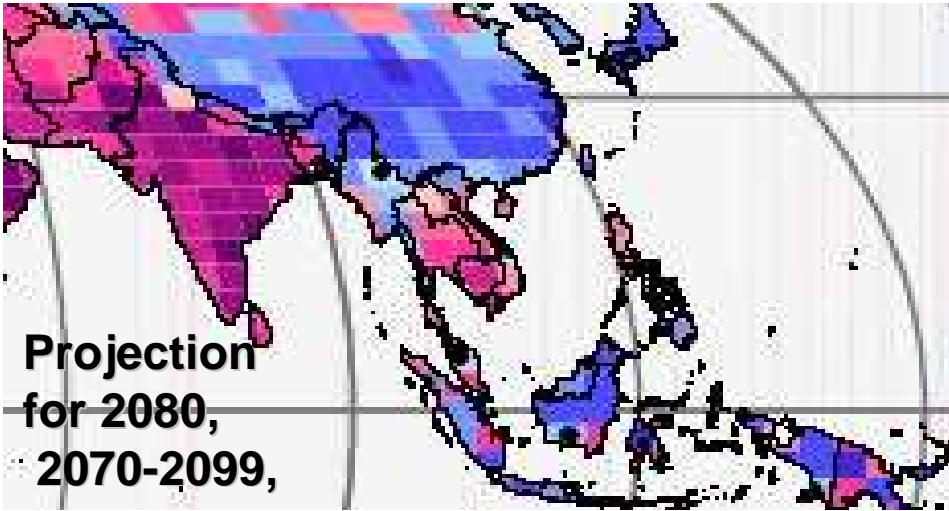
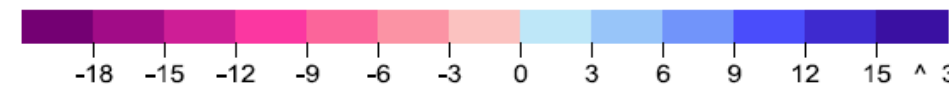
# 6.11. Potential Threats by Drought, 1975-2004 & Projections: 2050, 2080 © PIK



Klimatische Wasserbilanz [mm]



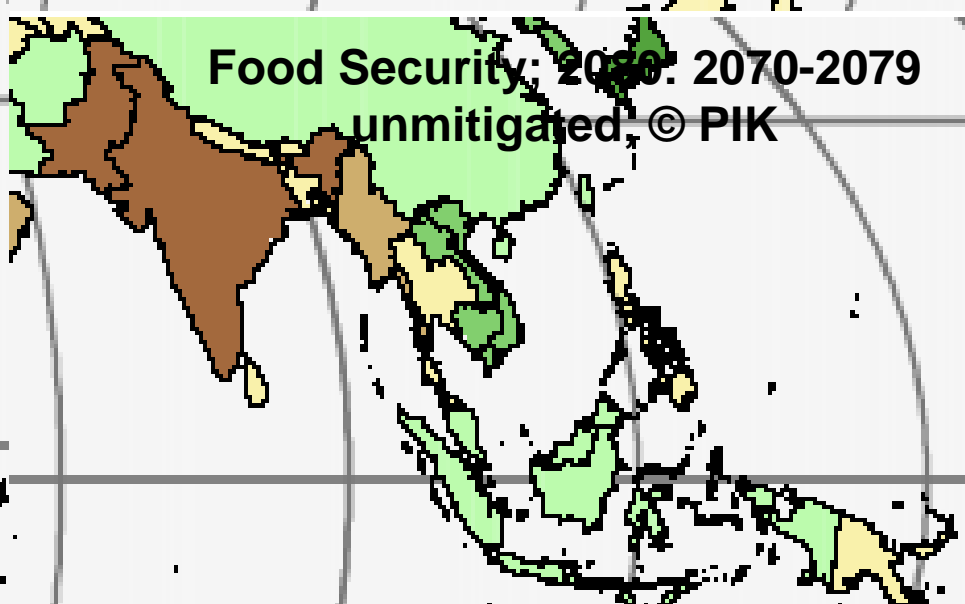
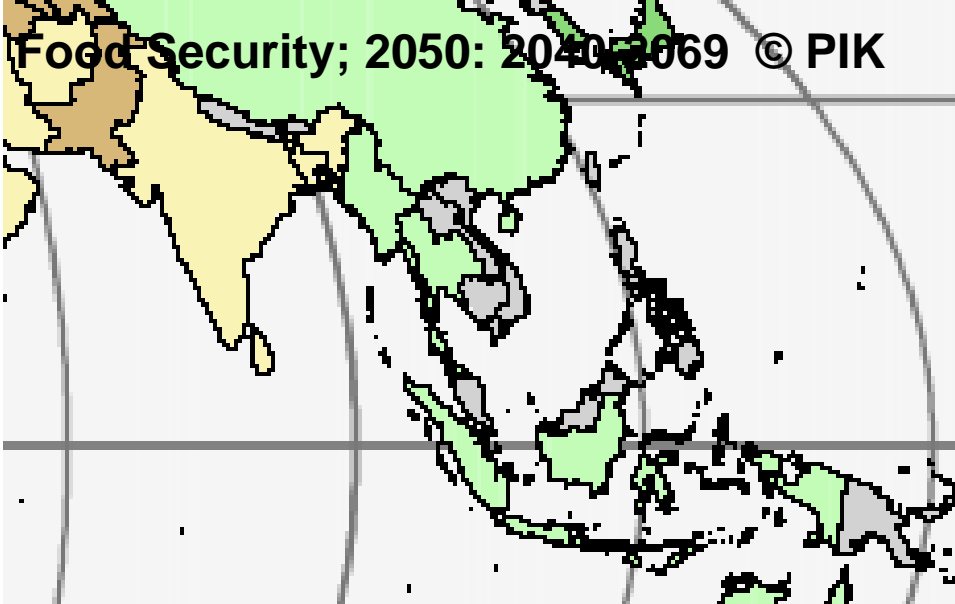
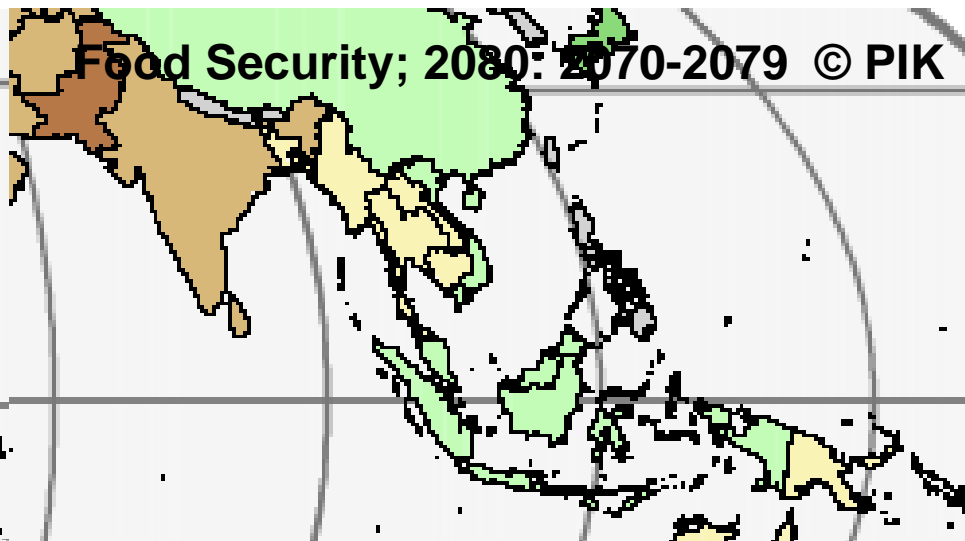
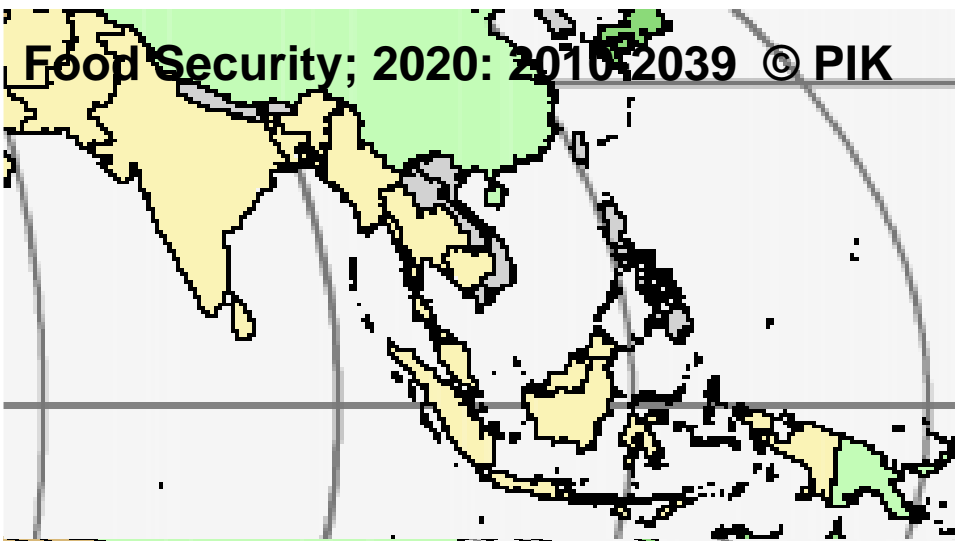
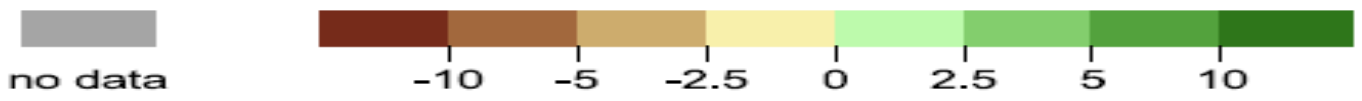
Veränderung der Klimatischen Wasserbilanz [mm]



# 6.12 Projections of Change in Crop Yield with Climate Change

2020, 2050,  
2080, unmitig.  
© PIK

potential yield change [%]



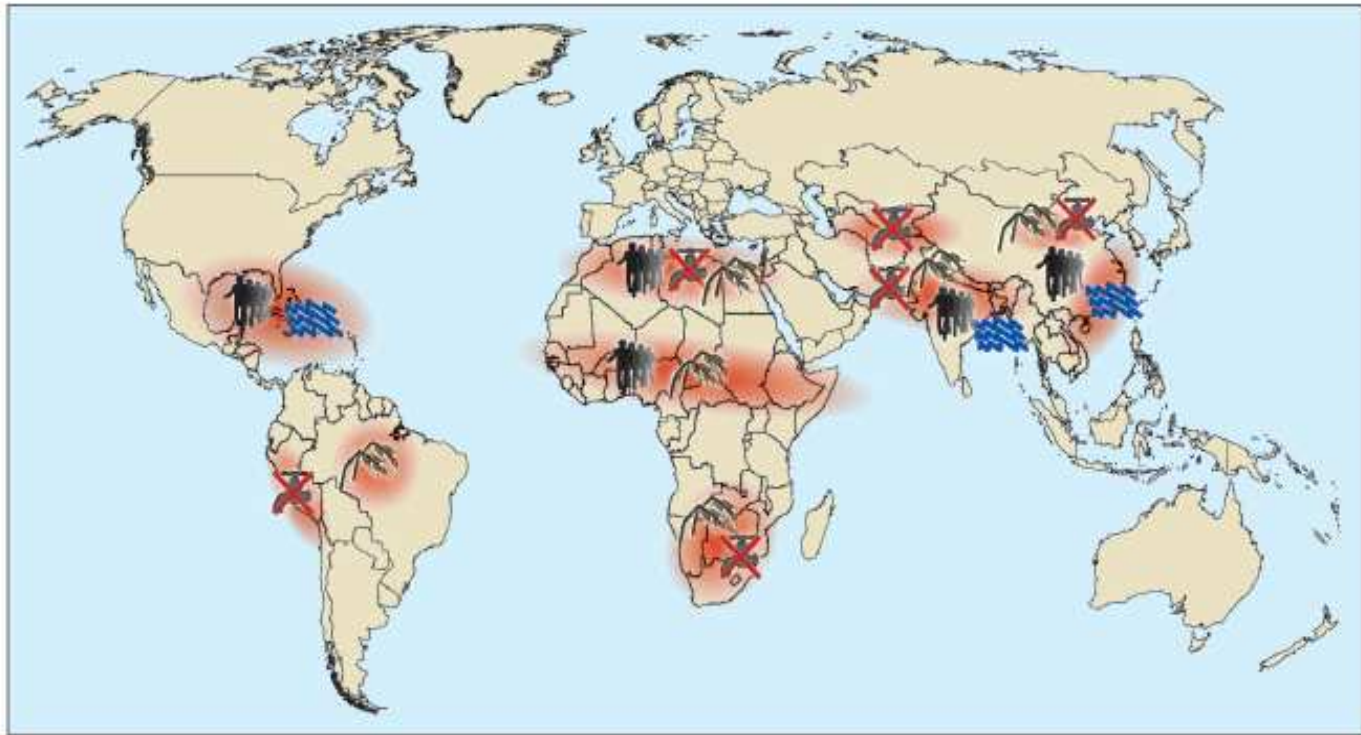


# 7. Potential Future Societal Impacts

- **Types of likely societal impacts:** migration, crises & conflicts and as a result: increased human insecurity
- While **structural trends (e.g. demography) can be projected** and climate impacts can be modelled, as **singular events both societal outcomes and political response cannot be predicted,**
- Therefore **conflict constellations** may be constructed with some probability (Scientific Advisory Council on Global Change of the German Government [WBGU approach])
- **Pathways to conflict** may be assumed (Report of UN Secretary General, 11 September 2009)

# 7.1. WBGU-Study: Climate Hotspots: 4 Conflict Scenarios

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



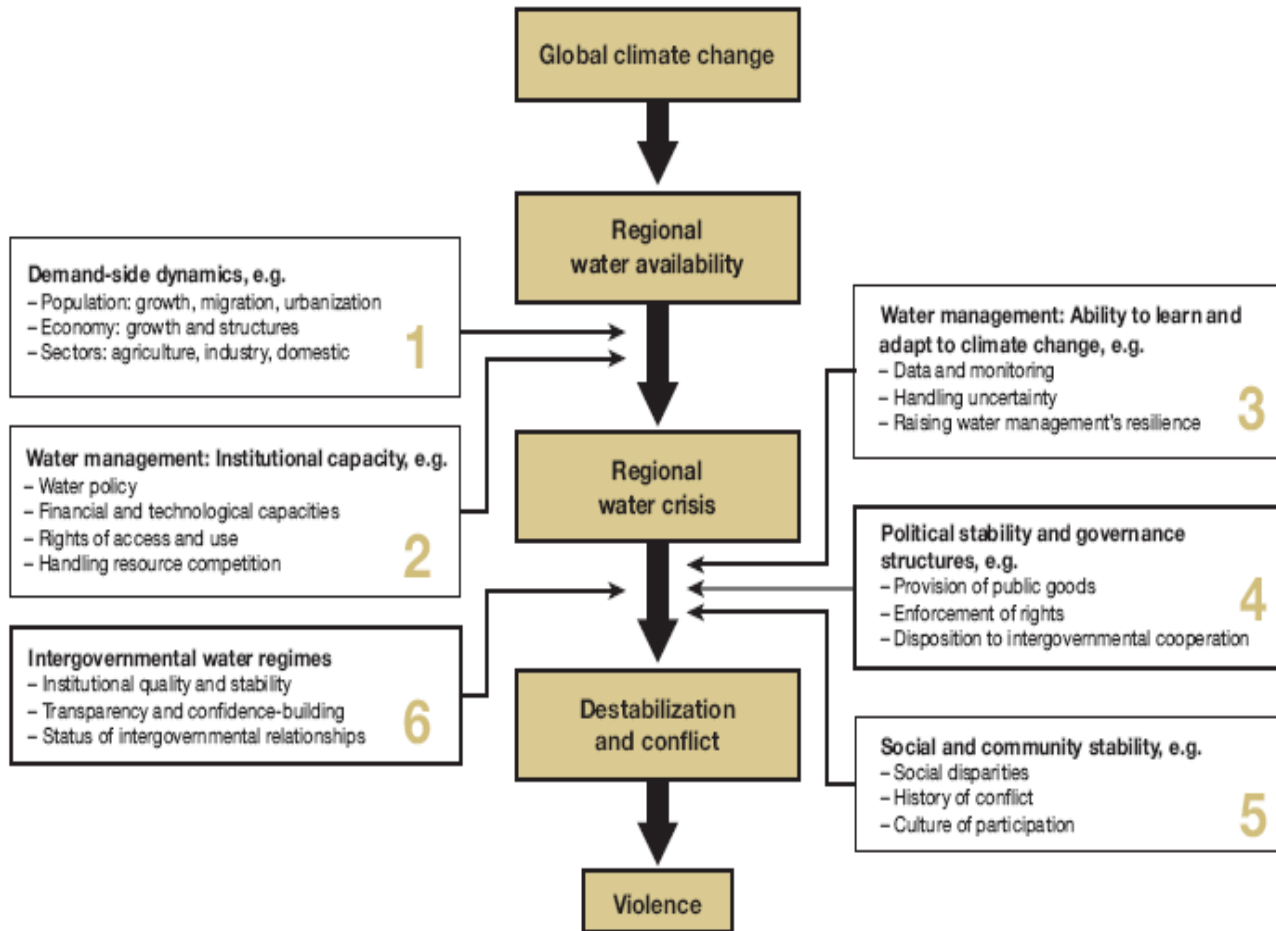
Conflict constellations in selected hotspots

	Climate-induced degradation of freshwater resources		Climate-induced decline in food production		Hotspot
	Climate-induced increase in storm and flood disasters		Environmentally-induced migration		

## 4 conflict constellations

1. Climate-induced freshwater resources
2. Climate-induced decline in food production
3. **Climate-induced increase in storm & flood disasters**
4. Environmentally- & climate induced migration

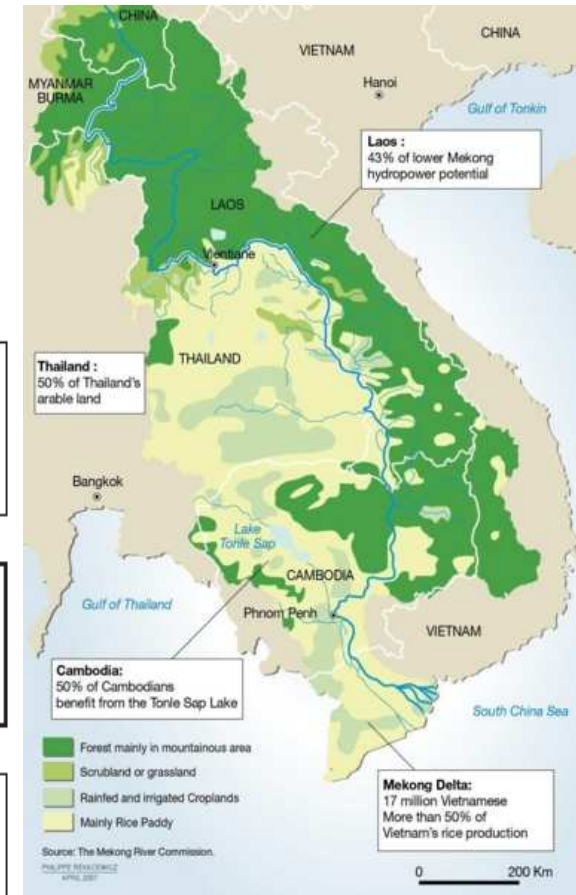
# 7.2. Conflict Constellation Climate-induced Degradation of Freshwater Resources



Boxes 1 – 6: Dimensions of influence with key factors

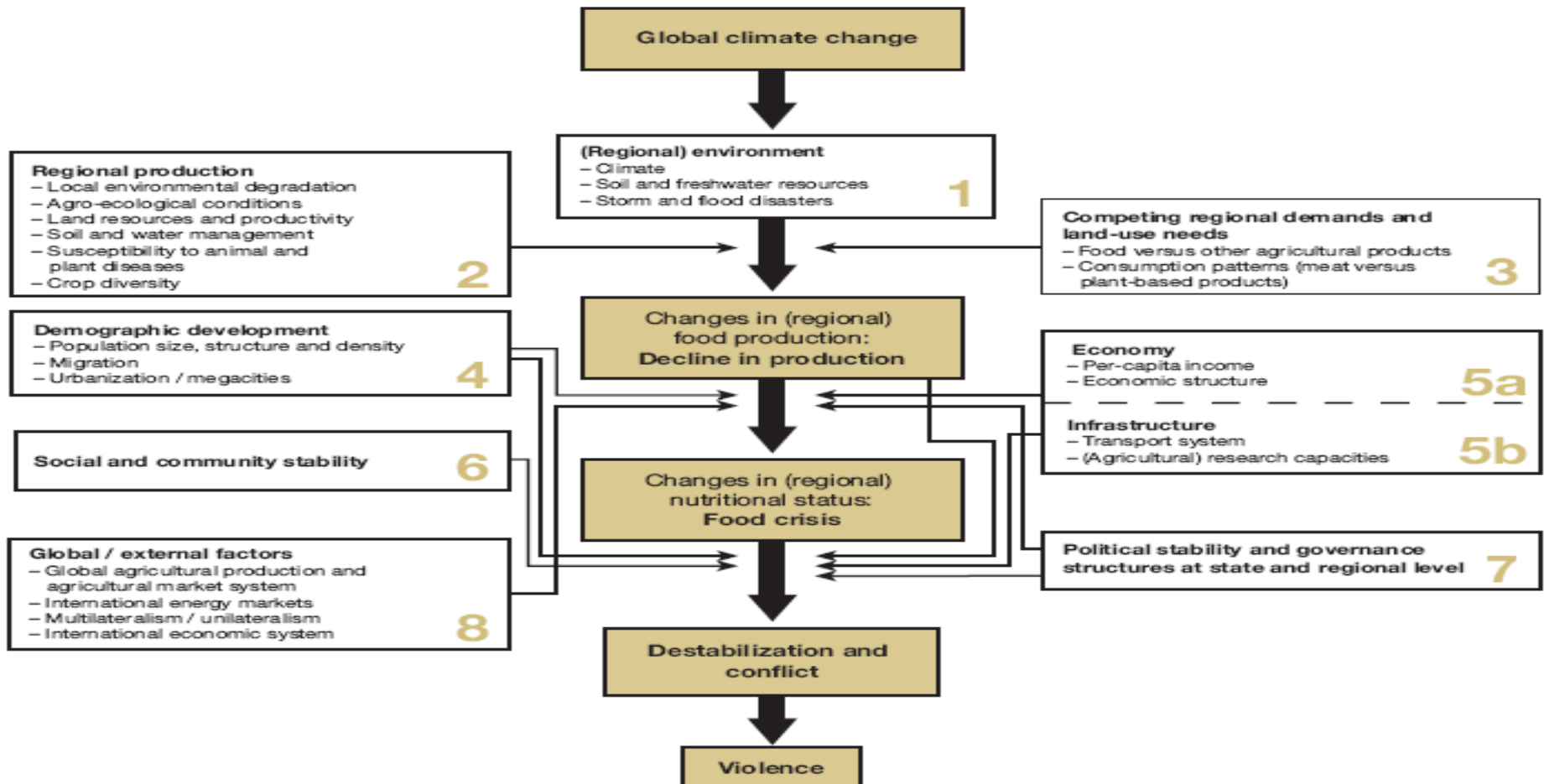
➔ Central causal chain

➔ Influence of key factors on the central causal chain



Relevant for states in Mekong River, especially for Laos, Cambodia, Vietnam Myanmar, Thailand

# 7.3. Conflict Constellation Climate-induced Decline in Food Production



Boxes 1-8: Dimensions of influence with key factors

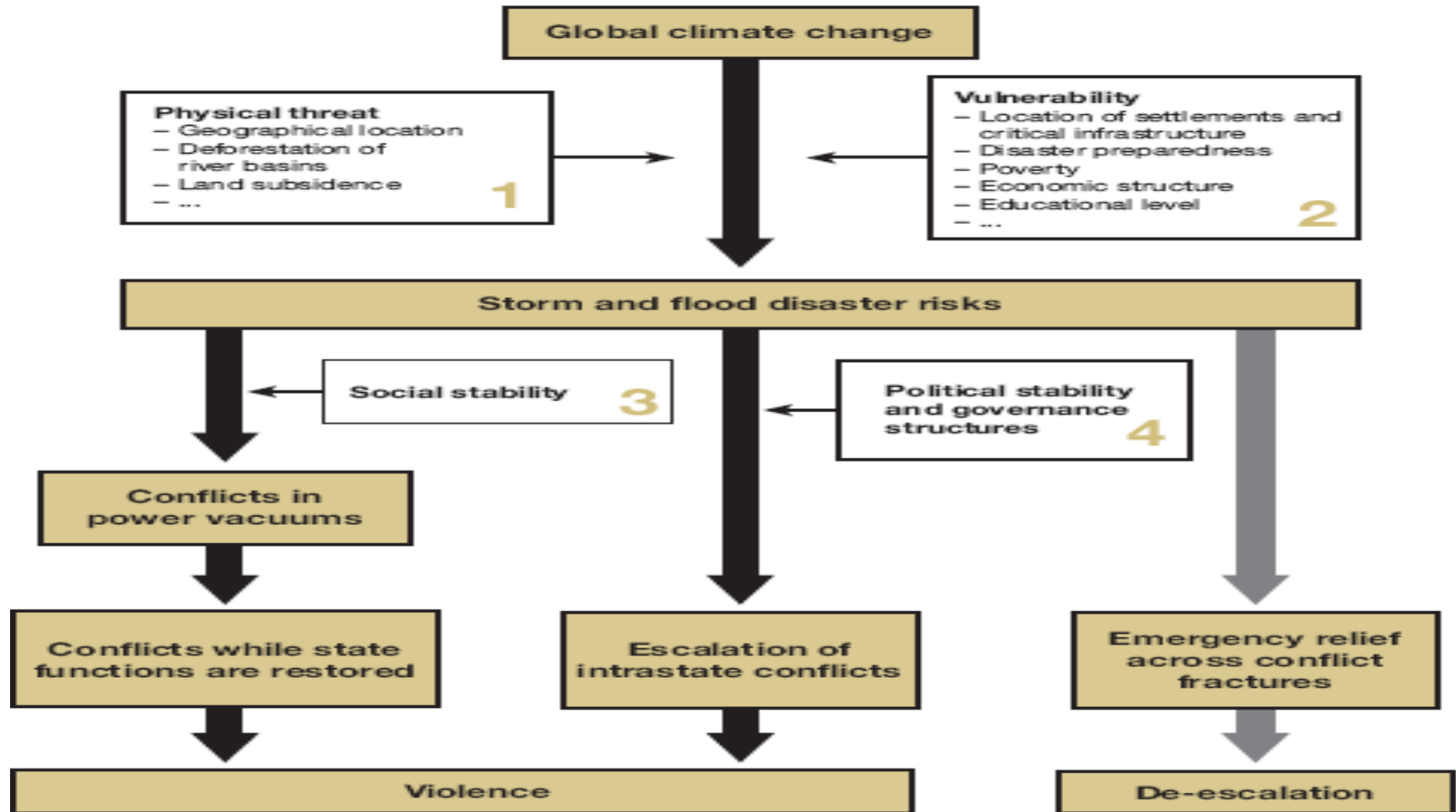


Central causal chain



Influence of key factors on the central causal chain

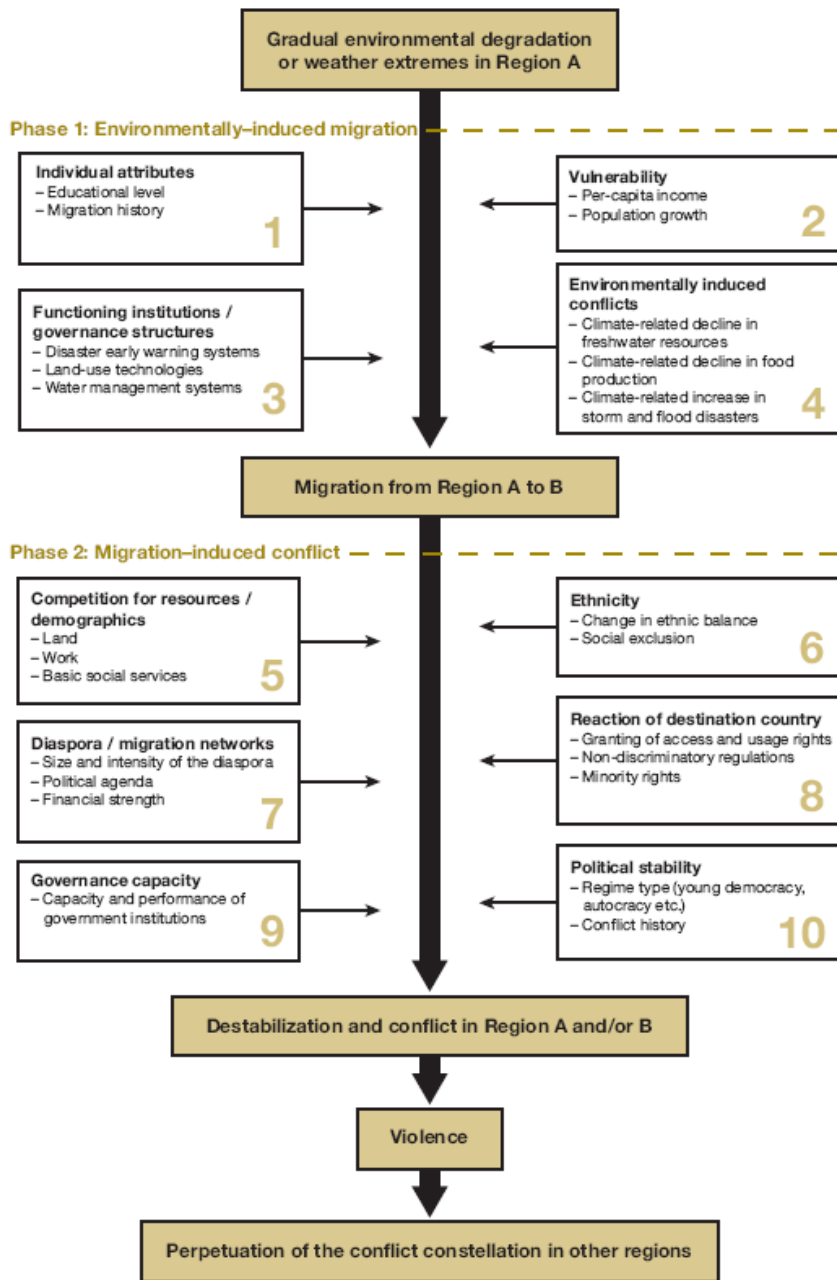
# 7.4. Conflict Constellation Climate-induced Increase in Storm & Flood Disasters



Boxes 1–4: Dimensions of influence with key factors

➔ Central causal chain

→ Influence of key factors on the central causal chain



## 7.5. Conflict constellation “Environmentally-induced migration”

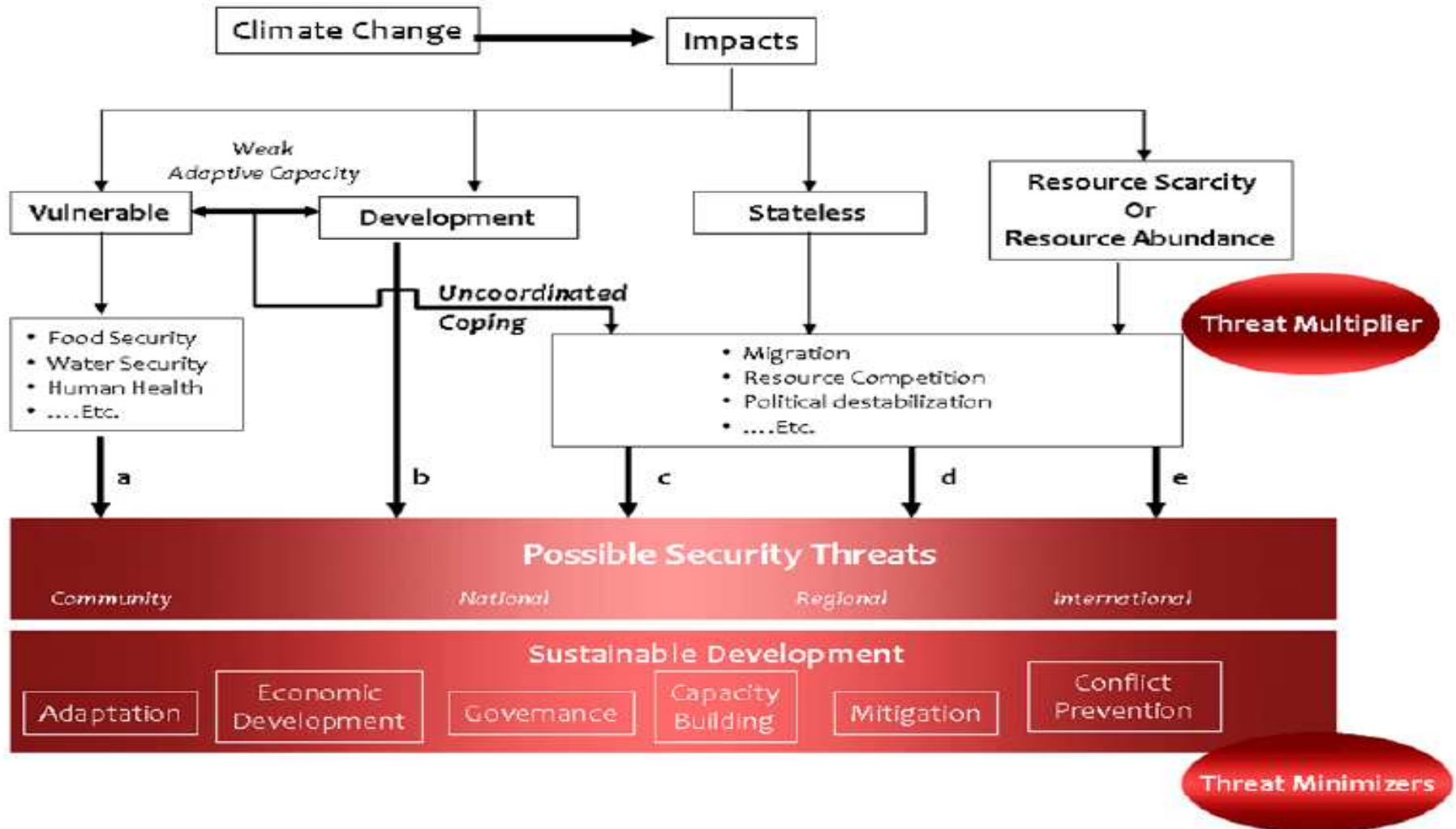
- IOM (2007): Environmental migrants are persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad.
- Migrants as a cause of conflict: if? Where? How?

Boxes 1-10: Dimensions of influence with key factors

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

# 7.6. Pathways to Conflicts and Conflict Constellations

Threat multipliers and threat minimizers: the five channels



Source: United Nations Secretariat, based on submissions of Member States and relevant organizations.

# 7.7. Need for Scientific Research

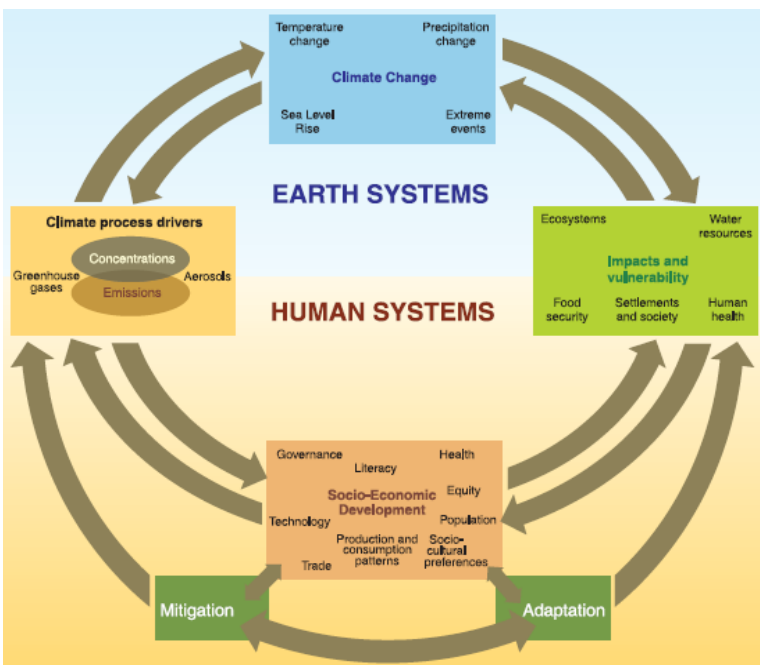
- **Discussion of four conflict constellations for SEA requires multidisciplinary interregional research**
- **Policy-driven consultancy reports: agenda-setting**
  - NIC Study (also not peer-reviewed, offered an analysis of the peer-reviewed literature) and its impacts on US national security interests and strategies up to 2030 (DoD planning)
  - Adelphi study: more limited mandate & resource base
  - Both cannot be cited by the IPCC in its AR5 (due in 2014)
- **Move from agenda-setting to scientific research**
  - From guess work & speculation to multidisciplinary research
  - **Policy decisions should be based on the best available knowledge that must still be developed within ASEAN and hopefully jointly together with the ASEAN Regional Forum to be reflected in the IPCC's AR 5**



# **8. Improving the Knowledge Base in South East Asia: Voice to ASEAN**

- 10 ASEAN countries are vulnerable to different physical effects of climate change**
- Regional & national adaptation and mitigation plans require a better regional knowledge base on:**
  - Specific physical effects of CC for all ASEAN countries;
  - Assessment of sectoral impacts (agriculture, health, habitat)
  - Analyses of case studies on linkages between environmental factors and climate change impacts for societal groups
  - A policy debate on strategies, policies and measures to avoid that possible conflict constellations will lead to violence
- Countries should support peer-reviewed scientific research that can be assessed by IPCC in its AR 5**

# 9. Addressing Linkages of Global Climate Change and Security in SE Asia



## • Four Schools or Approaches

- Dramatizers: Climate war
- Sceptics: lack of research
- Scenario analyses
- Empiricists

## • Empirical analysis: needed

- Qualitative case studies
- Quantitative analyses

## • Causal analysis: needed

- Natural phenomena -> migration, crises, conflicts (violence)

## • Discourse analysis: major focus

- International, national, environmental (water, food, health), human security

## Objects of Security Analysis (Securitization)

- Physical Effects: e.g. temp, rise
- Impacts: Sectors
- Societal Effects

Whether they pose:

- Objective Security Dangers
- Subjective Security Concerns

# 9.1. Policy **R**esponse to Security Dangers posed by Global Change in SE Asia

- **How? Responsive vs. proactive action**
  - **Reponse**: cost of non-action (Stern Report)
  - **Proactive**: anticipatory knowledge, learning, action
- **What? Address Causes (**P**ressure)**
  - **Earth system**: environmental quartett
  - **Human**: productive/consumptive behaviour
- **Respond to **E**ffects & **I**mpacts**
  - **Environmental stress**
  - **Climate-related natural hazards**
- **Address **S**ocietal **O**utcomes & **P**olicy **R**esponse**
  - Migration, Crises and Conflicts

# 10. Proposals for Intensifying the Dialogue in the ARF Framework

## From agenda-setting to knowledge creation

- 5th IPCC Assessment Report (2014)

- WG II: Chapter 24 on Asia

- WG II: Chapter 12 on Human Security

Basis: peer-reviewed scientific knowledge on the region by scholars from the region (give ,voice‘)

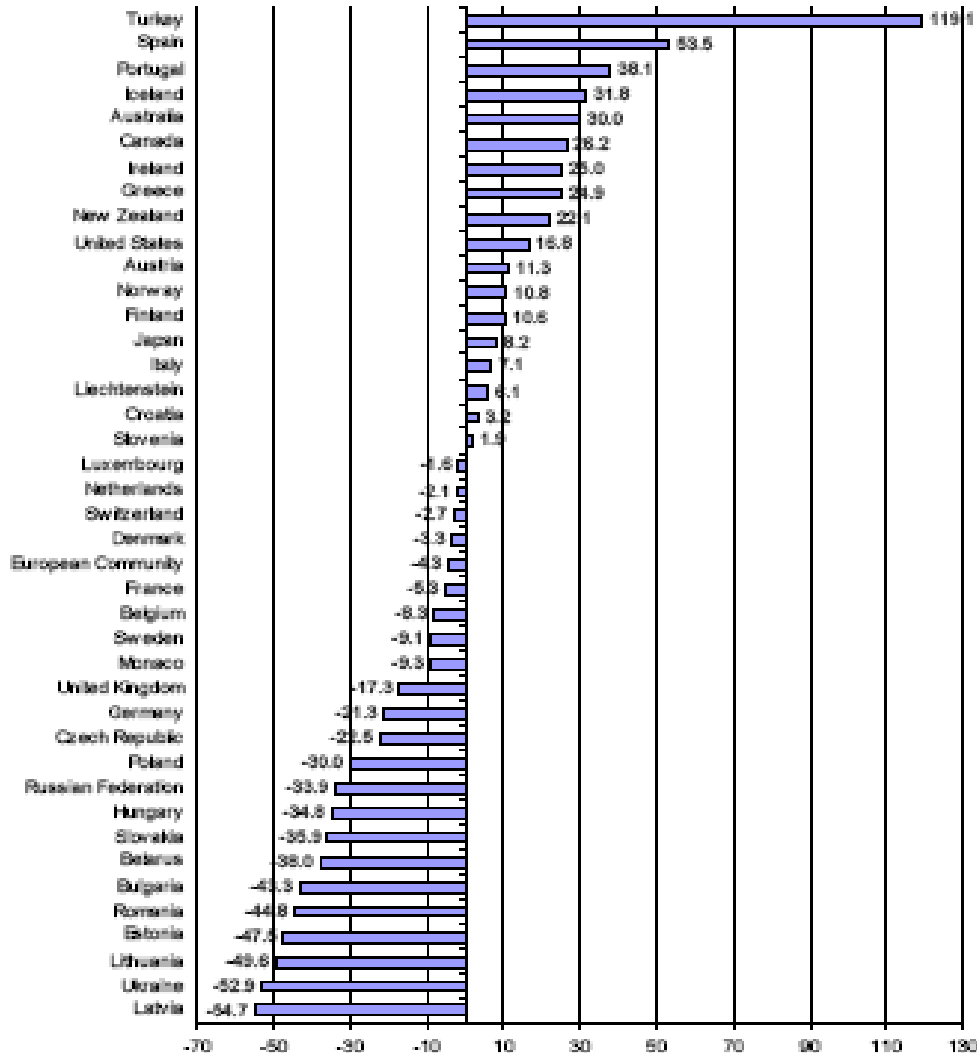
- **Joint EU-ASEAN Scientific Study Group (to report to ASEAN Regional Forum)**

- EU call 7th Framework Programme of Research

- Climate Change & Security in ASEAN Countries<sup>44</sup>

# 10.1. From Reactive to Proactive Action?

Changes in GHG emissions excluding LULUCF (%)



**UN Framework Convention on Climate Change (1992)**

**goal: stabilization by 2000**

**Kyoto Protocol (1997): goal: global reduction by 5.1%**

**Many countries missed target (USA: + 16.8% instead of -8,1% (KP), by 25%)**

**G-8 Commitment: -50% globally or by -80% by Annex-1 countries (including most OECD countries)**

**How to achieve these ambitious goals until 2050?**

# 10.2. Copernican Revolution in Thinking Fourth Sustainable and Green Revolution in Action

**We face two alternative strategies & visions**

- **Hobbesian obsession & business as usual (1990-2010)**
  - Many failed obligations and missed opportunities since Kyoto (1997)
- **A revolution in thinking and action for sustainability**
  - Clark/Crutzen/Schellnhuber (2004/2005). Copernican revolution towards sustainability: fundamental paradigm shift (Kuhn 1962)
  - Action Goals: A fourth sustainable and green revolution
  - Strategy: Transition towards Sustainability
  - **UNEP Strategy: Achim Steiner February 2009: New Green Deal**

**Transition to fourth peaceful revolution (Anthropocene)**

- First Revolution: Agricultural: collectors to farmers
- Second Revolution: Industrial (1750)
- Third Revolution: Communication (after WW II)
- Fourth Revolution: Sustainable Green Revolution (2050)

# 10.3. New Peace & Security Agenda for the Anthropocene

**For the transition to the Anthropocene Era of Earth History we need for the 21st century**

- **A Copernican Revolution in the thinking for sustainability**
- **A Fourth Sustainable Green Revolution**
- **A Strategy for a sustainability transition**
- **New Nonmilitary Environmental Security Agendas**
- **New realistic conceptual visions as guidelines for action**
  - **Vision of a sustainability transition**
  - **Vision of a decarbonization of the economy**
  - **Vision of efficiency revolution**
  - **Vision of an energetic imperative**

# 10.4. Policy Vision & Perspective:

## Towards Sustainable Peace & Fourth Green Revolution

- **Goal: stabilization of temperature increase at 2°C in global average temperature by 2100:**
  - -50% global reduction of GHG, or 80% for OECD countries
  - Requires major transformation & decarbonization of economy
- **Combination of sustainable development strategy & peace policy: sustainable peace to prevent that GEC issues pose a threat to international peace.**
- **Fundamental transformation of security is needed not a militarization of the environment!**
- **We are both the threat (burning of hydrocarbons) & we can jointly develop the solutions starting now**
  - Changes in production, energy efficiency, renewables



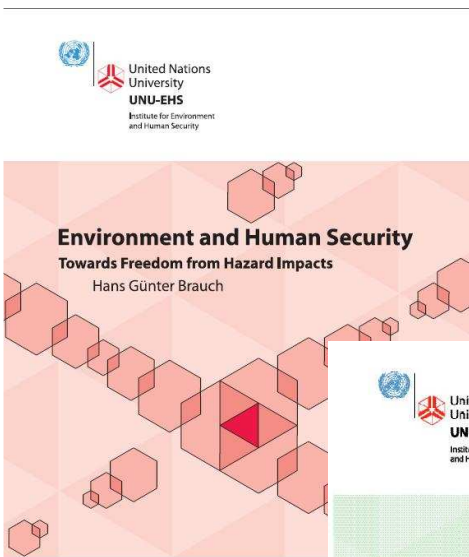
# 10.5. Need for Scientific Knowledge & Anticipatory Learning

- **Launch a research project or network (to report to ASEAN Regional Forum and to EU)**
  - **Financing:** EU call 7th Framework Programme of Research
  - **Focus:** Climate Change & Security in ASEAN Countries
- **Enhance scientific visibility of scholars from ASEAN countries in IPCC's AR 5 (2014)**
- **Deliverable:** peer-reviewed scientific handbook on climate change and security giving voice to scholars from natural & social sciences in ASEAN countries.
- **Establish a joint EU-ASEAN policy working group on adaptation & mitigation measures for avoiding security impacts of regional climate change.**

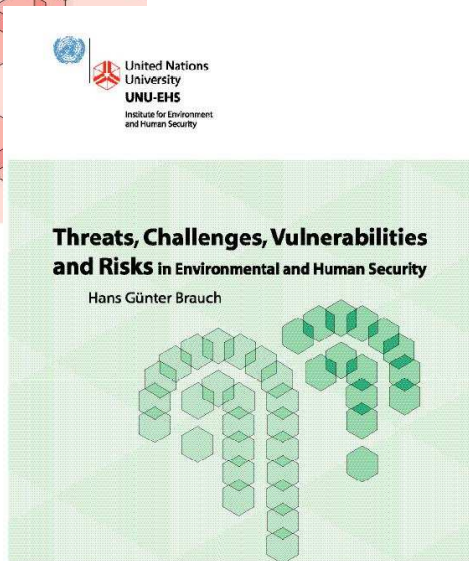
# 10.6. Readiness to Include ASEAN Book in Peer-reviewed Book Series

- We should move from scenario analyses by think tanks to ambitious theoretically-guided empirical research.
- So far there are few peer-reviewed scientific empirical studies from ASEAN scholars on climate change and security linkages.
- As editor of a peer-reviewed book series on **Human, Environmental Security & Peace (HESP)** published by Springer I would be delighted to give voice to ASEAN scholars in a handbook on
  - **Environment, Climate Change and Regional, National and Human Security in South-East Asia: Analyses and Perspectives from ASEAN countries**
- Such a volume should publish new & original research by scholars from ASEAN countries with the goal to become recognized by the fifth assessment report (2014).

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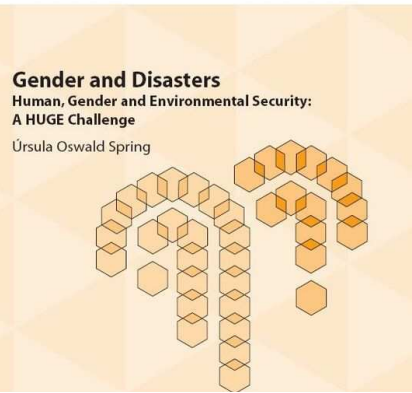
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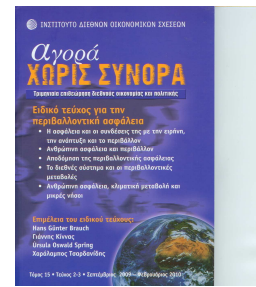
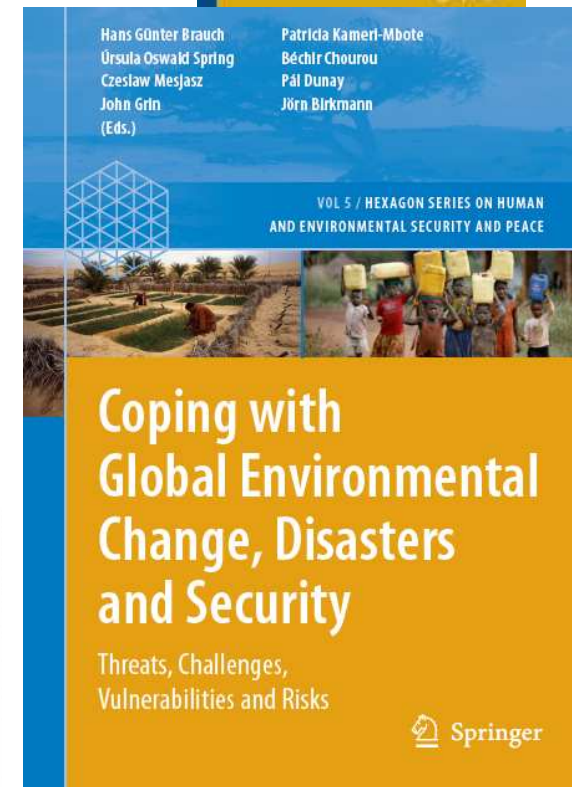
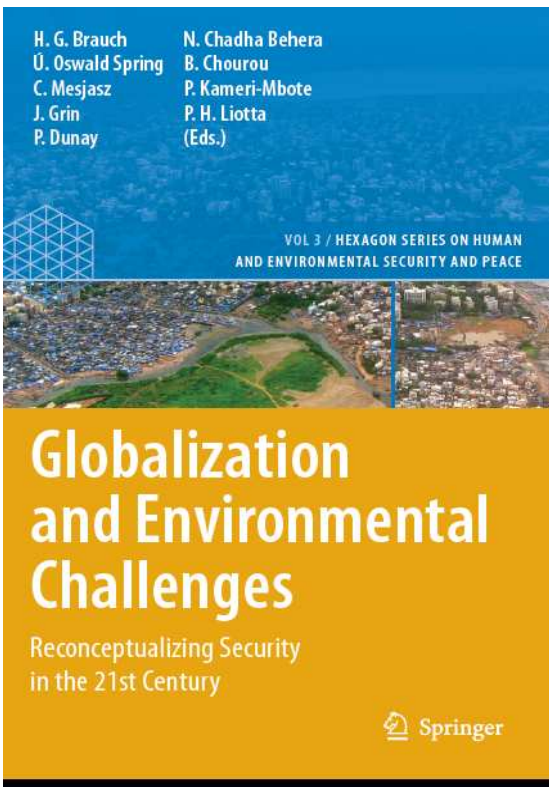
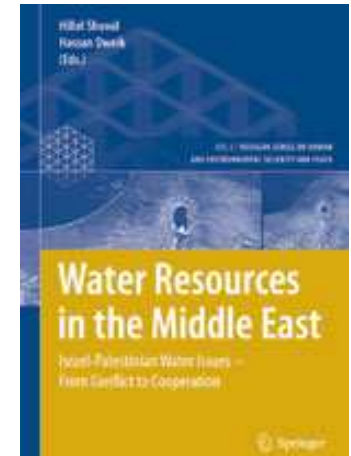
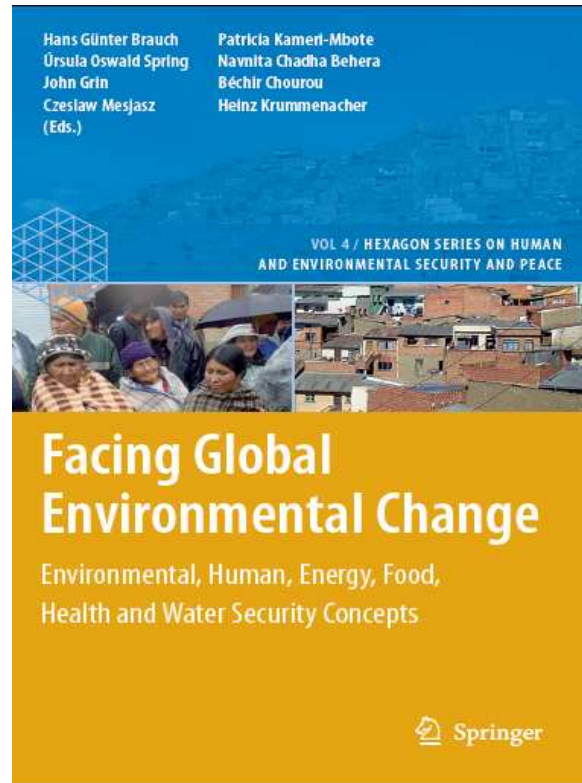
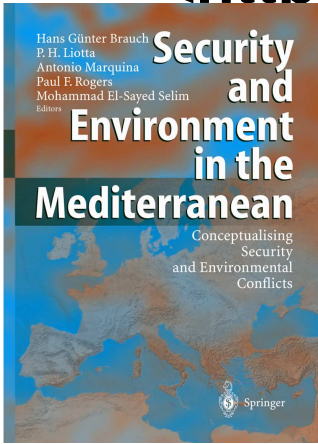
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PROPOSALS AND PERSPECTIVES  
Hans Günter Brauch

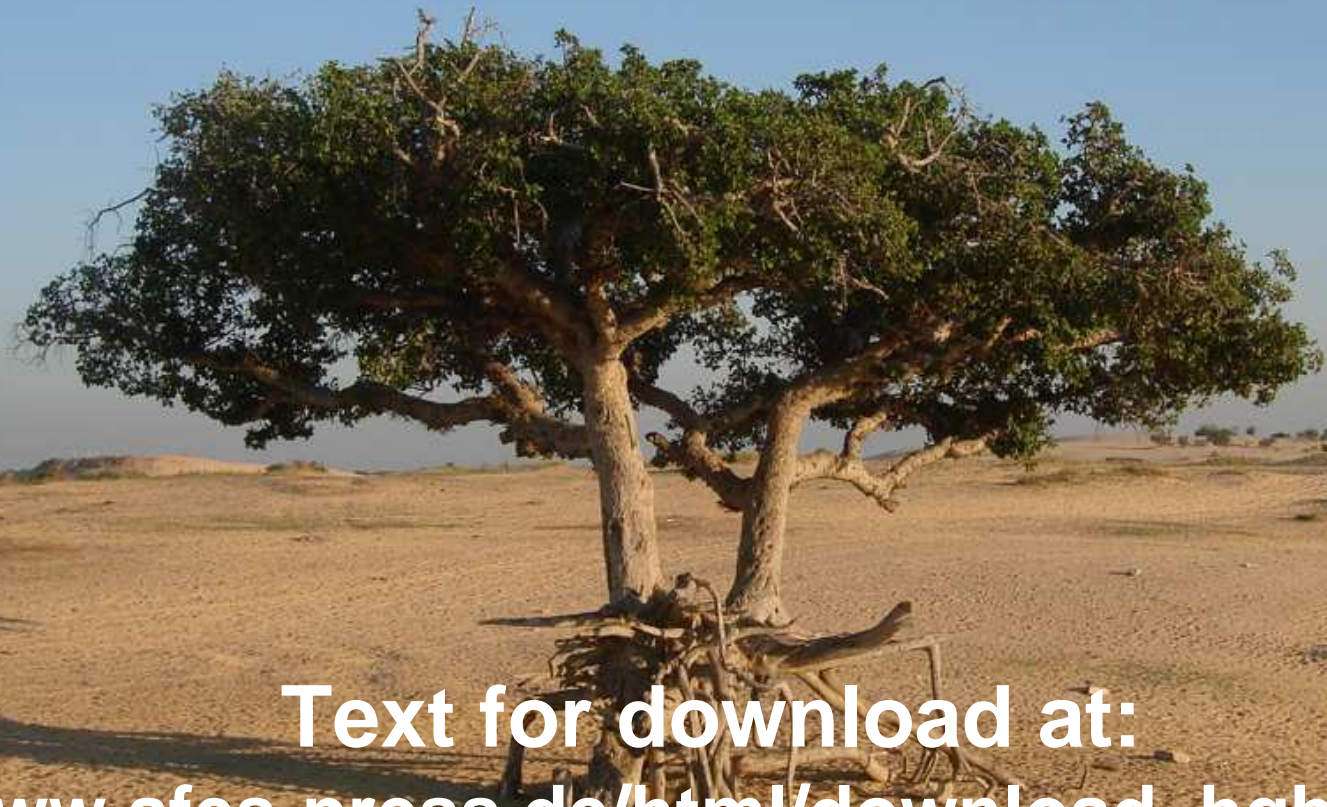
# 10.7. Hexagon Series: Volumes I-V

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