CHULALONGKORN UNIVERSITY
Faculty of Political Science
Graduate study consortium on developing an MA.or PhD. thesis degree on DRRM
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Global Change, Natural & Environmental Disaster: Migration, Conflicts and Policy Response

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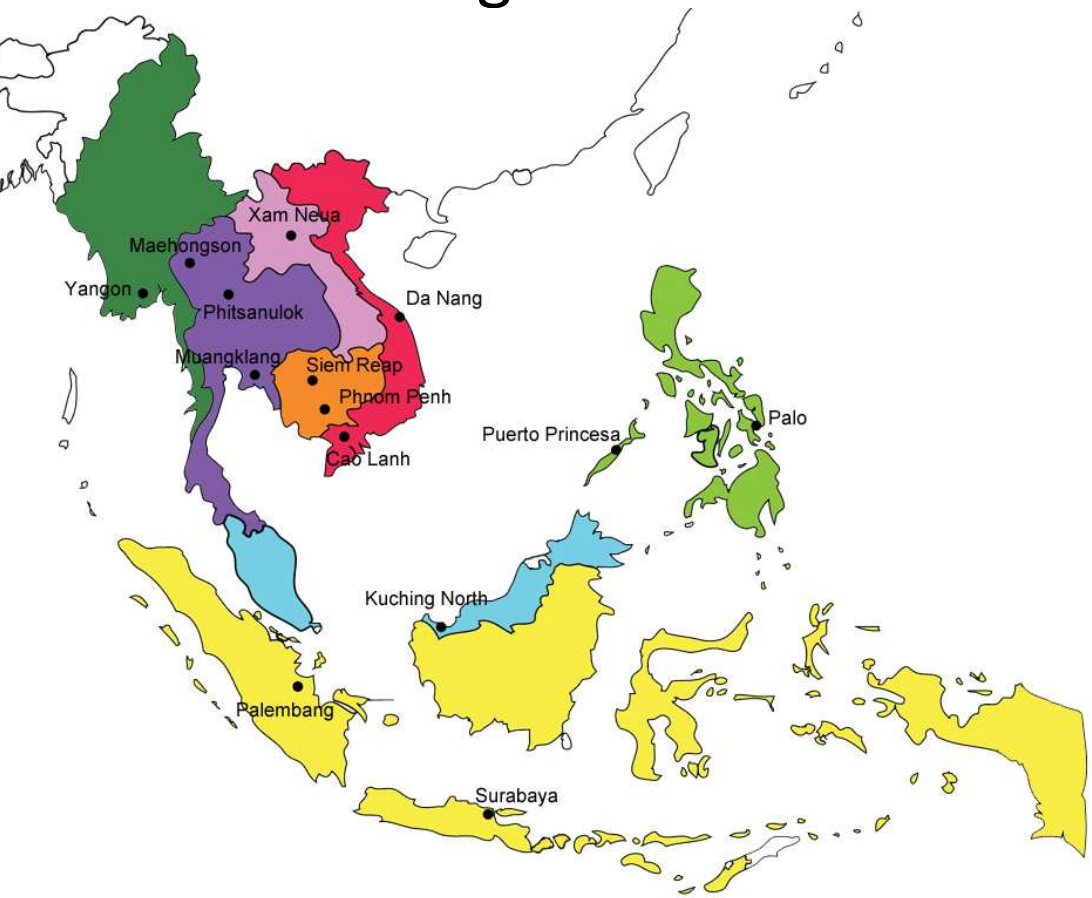
Contents

Global Change, Natural & Environmental Disaster: Migration, Conflicts and Policy Response

1. Impact Global Environmental Change & Climate Change for ASEAN Region
2. Natural Variability & Anthropogenic Climate Change
3. Earth/Human System & PEISOR Model
4. Global Physical Effects to Climate Change
5. Present & P Future Societal Impacts
6. Need for Anticipatory & Reactive Policy Responses
7. Dual Challenge: Social & Environemtnal vulnerability
8. International, national & human security Responses
9. Regional Relevance for ASEAN Community: Brunei 2013

1. Impact Global Environmental Change & Climate Change for the ASEAN Region

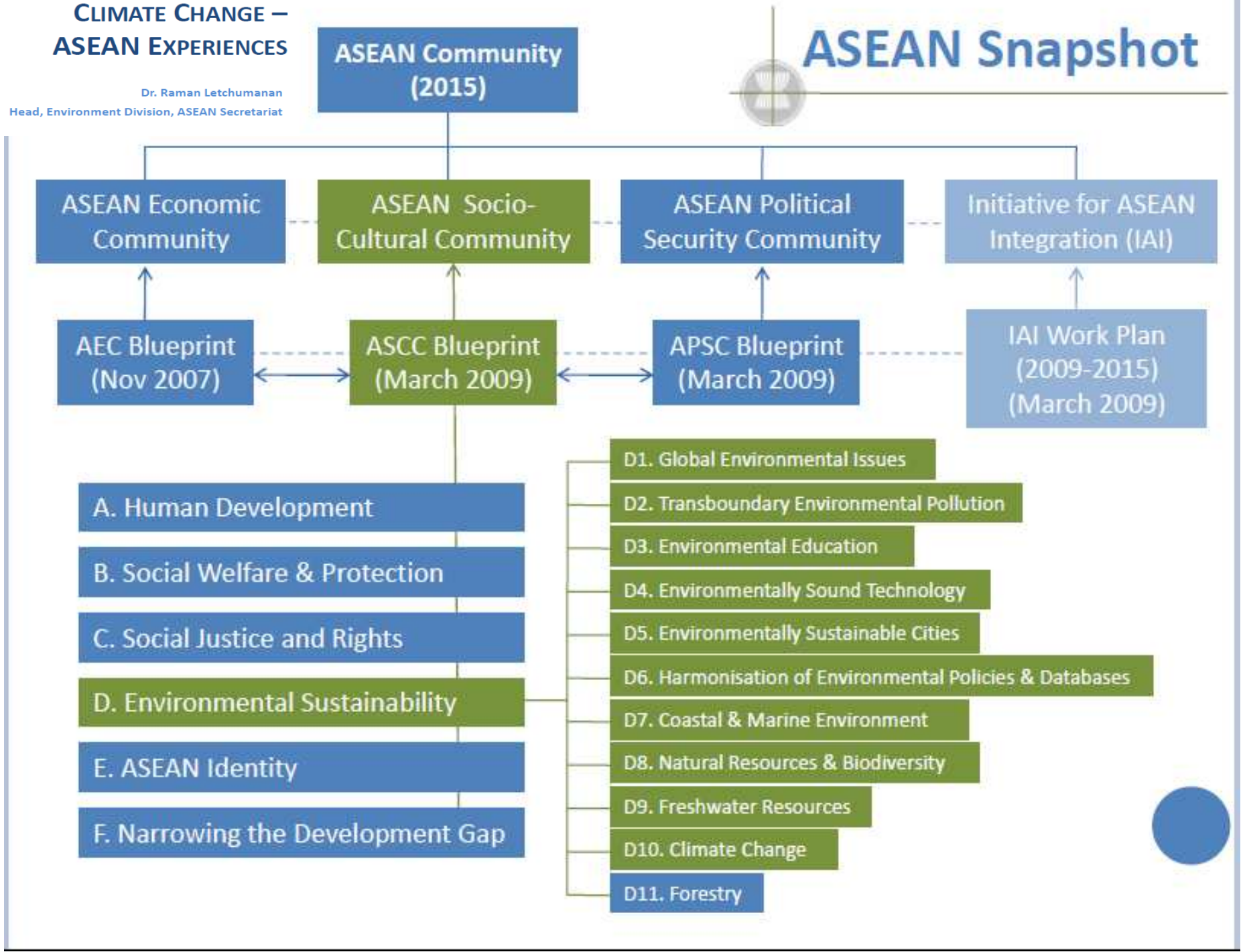
- ASEAN: High vulnerability to climate change induced hazards



CLIMATE CHANGE – ASEAN EXPERIENCES

Dr. Raman Letchumanan
Head, Environment Division, ASEAN Secretariat

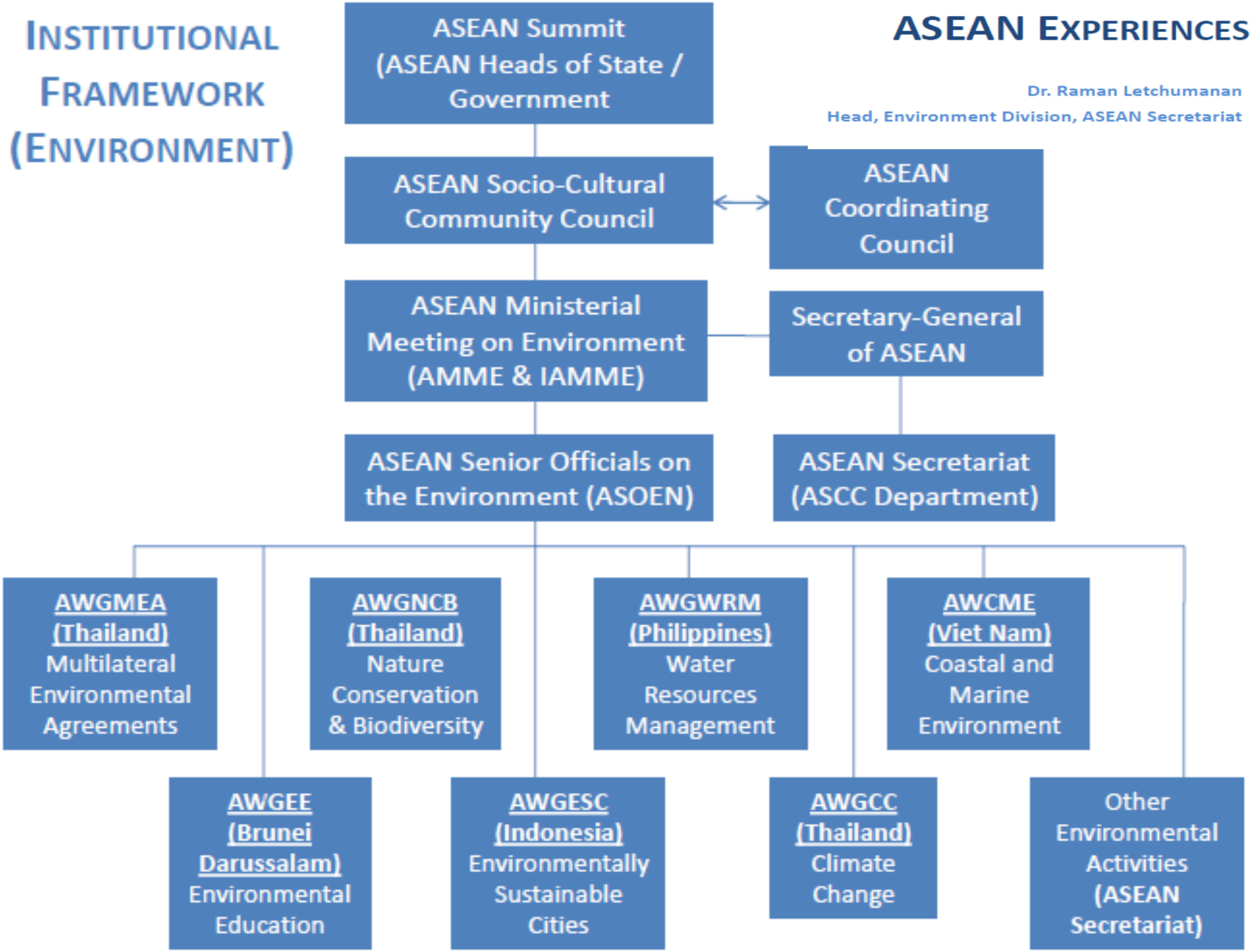
ASEAN Snapshot



Climate Change – ASEAN Experiences

Dr. Raman Letchumanan
Head, Environment Division, ASEAN Secretariat

Institutional Framework (Environment)



SECTION D10 OF
THE BLUEPRINT FOR THE ASEAN SOCIO-CULTURAL COMMUNITY (2009-2015)

Actions:

i. Encourage ASEAN common understanding on climate change issues and where possible, engage in joint efforts and common positions in addressing these issues;

ii. Encourage the efforts to develop an ASEAN Climate Change Initiative (ACCI);

iii. Promote and facilitate exchange of information/knowledge on scientific research and development (R&D), deployment and transfer of technology and best practices on adaptation and mitigation measures, and enhance human resource development;

iv. Encourage the international community to participate in and contribute to ASEAN's efforts in afforestation and reforestation, as well as to reduce deforestation and forest degradation;

SECTION D10 OF
THE BLUEPRINT FOR THE ASEAN SOCIO-CULTURAL COMMUNITY (2009-2015)

Actions:

v. Develop regional strategies to enhance capacity for adaptation, low carbon economy, and promote public awareness to address effects of climate change;

vi. Enhance collaboration among ASEAN Member States and relevant partners to address climate related hazards, and scenarios for climate change;

vii. Develop regional systematic observation system to monitor impact of climate change on vulnerable ecosystems in ASEAN;

viii. Conduct regional policy, scientific and related studies, to facilitate the implementation of climate change convention and related conventions;

1.5. ASEAN Climate Change Initiative

- **ASEAN Climate Change Initiative** formed (2010): policy coordination, policy & strategy formulation, capacity building, technology transfer, support of IPCC and UNFCCC negotiations
  - Natural Resource Uase
  - **Extreme Events**
  - Transport sector
  - Sustainable cities
- Climate change on Agenda of ASEAN summir in 2011, mentioned in 2012
- No common position on climate ch.
- Will to build a green ASEAN

1.6. Final document of ASEAN Summit in Brunei, 2013

- 12. We encouraged various mechanisms related to **disaster management in ASEAN** … using the **ASEAN Agreement on Disaster Management and Emergency Respon-se (AADMER)** as the common platform for disaster management. In this regard, we looked forward to the convening of the **ARF Disaster Relief Exercise (DiREx) in Thailand on 7-11 May 2013, the Mentawai Megathrust Exercise 2013-2014 in Indonesia, involving the East Asia Summit (EAS) Participating Countries, and the Disaster Emergency Response Exercise (ARDEX), in Viet Nam in October 2013**.

ASEAN Socio-Cultural Community

- 43. **We acknowledged the significance of prioritising our efforts to address climate change and disaster management in 2013.** We recognised that the **human impact of climate change** is related to adaptation issues that are directly linked to the **Socio-Cultural Pillar of the ASEAN Community. We encouraged efforts to develop an ASEAN Climate Change Initiative (ACCI) & to consider an ASEAN Action Plan on Joint Response to Climate Change.**
- **44. We agreed that disaster preparedness is crucial as ASEAN Member States continue to face challenges of increasing global temperatures, more severe floods and droughts, as well as rising sea levels. We welcomed the progress in the implementation of the first phase of the AADMER Work Programme during 2010-2012 and committed to support the launching of the second phase of the Work Programme for 2013-2015.**

1.7. ASEAN Action Plan on Joint Response to Climate Change

- The ASEAN Leaders' Statement on Joint Response to Climate Change which was adopted on 9 April 2010 at the 16th ASEAN Summit *recognizes* that the Southeast Asian region is vulnerable to climate change which will seriously affect most of aspects of livelihood and limit ASEAN development options for the future, including regional efforts towards the achievement of the Millennium Development Goals; … (Paragraph 21).

Strategic Objectives for Addressing Climate Change in the Region

- **To enhance research collaboration on climate change science in ASEAN.**

Programme of Action for Addressing Climate Change in the Region

- Sharing information on R&D in hydrological. agricultural management & practices that aim to enhance food security, agricultural productivity and **water resources sustainability;**
- Sharing information on ongoing 6 planned adaptation efforts in urban, rural, coastal areas;
- Enhancing existing ASEAN climate/meteorological/oceanographical centers
- Developing ASEAN work programme to address loss and damage, & options for risk management.

C.4 Technology Transfer

- Facilitating international support for, **technology transfer to ASEAN**
- **Sharing inform. & experiences on interface towards low carbon development & green economy;**
- **Establishing strategic alliances with private sector to promote R&D collaboration and technology transfer and commercialisation.**

1.8 ASEAN REGIONAL FORUM

Two Seminars on International Security Implications of Climate Change

First: Phnom Penh, March 2009

Second: Brussels, 18-19 November 2010

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

Potential Societal Impacts of the Physical Effects of Climate Change

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1.9 Recommendations of this Seminar

Amb. Enrique Manalo, The Philippines, 2011

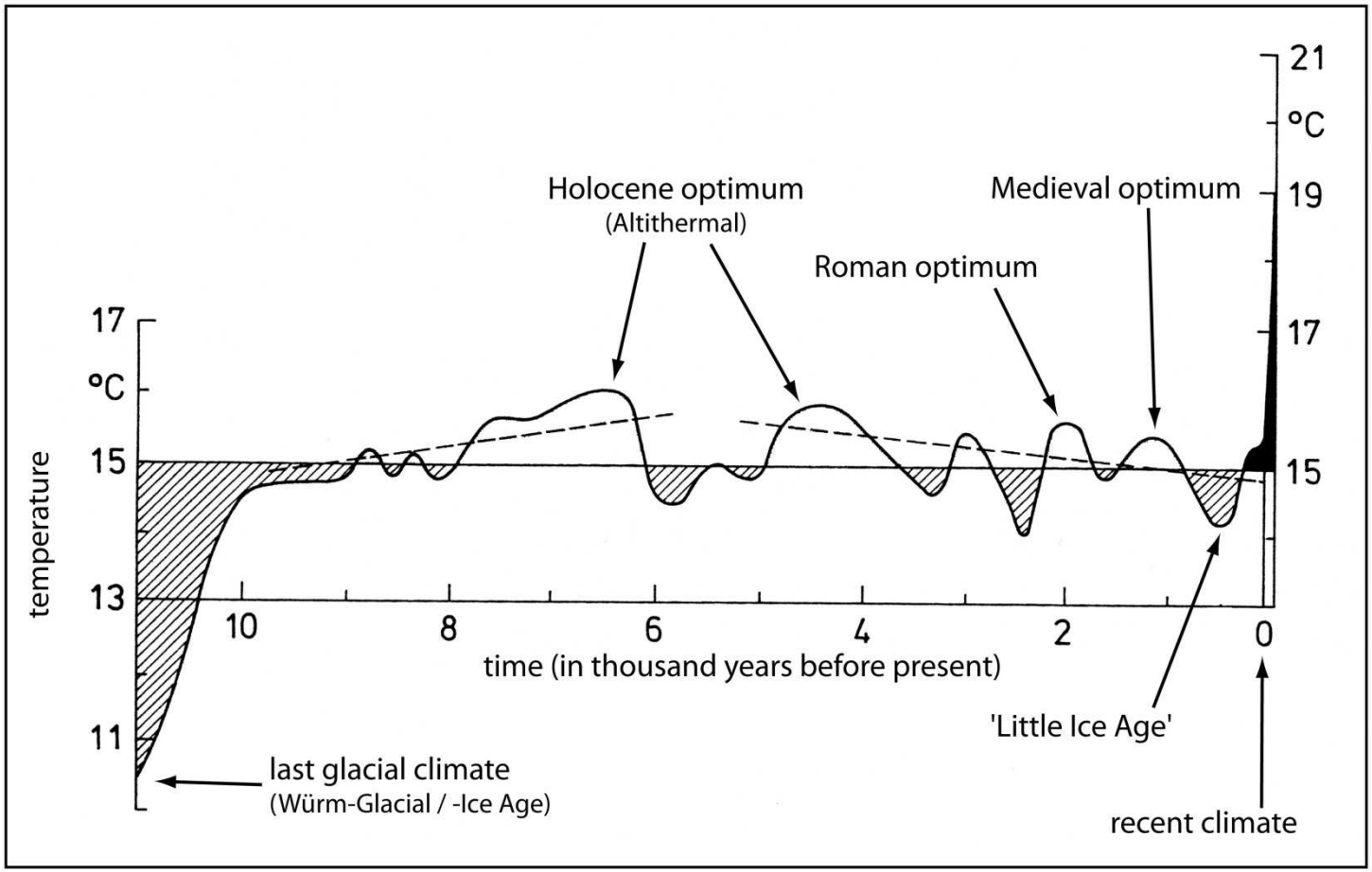
1. The relevance of continuing a regional political dialogue on promoting understanding of complex inter-linkages between climate change and security
2. The studies and scenarios presented showed the potential complex and trans-boundary impacts of climate change on agriculture productivity, resource pressures and national and human security, including migration. Special attention should be devoted to strengthening national and regional capacities particularly on disaster risk reduction and management, early warning and rapid response capabilities, disaster prevention through development assistance, information exchange and technology and knowledge transfer.
3. A concerted international and regional approach is needed to further explore appropriate responses to the security risks associated with climate change, particularly with regard to protecting vulnerable sectors of the population, noting that there is no `one size fits all` approach.
4. There is a need to set up effective collaborative platforms where the representatives of the international, regional, national and local authorities and civil society can engage in promoting the understanding of the inter-linkages

1.10 Theme of my updated 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

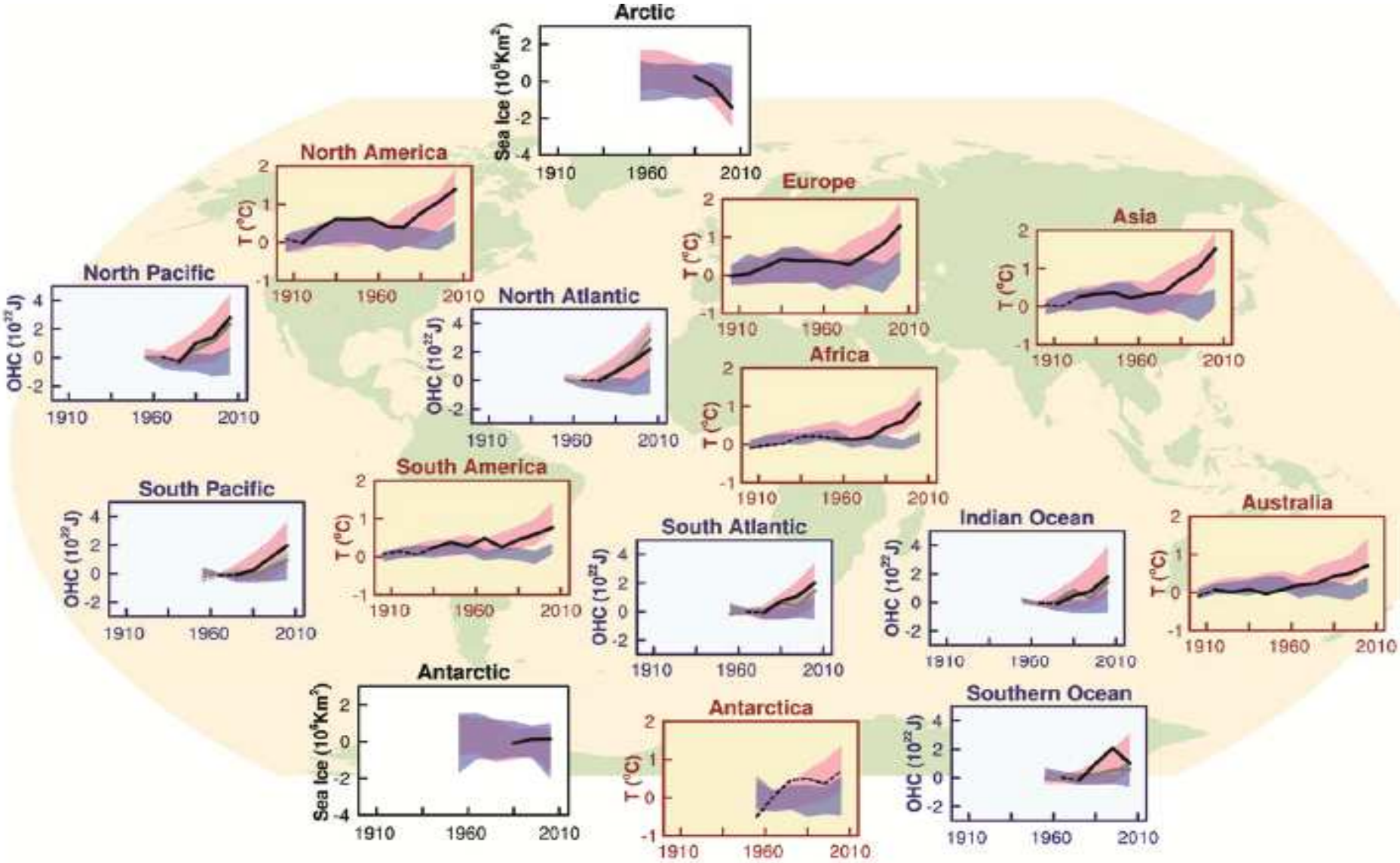
Paul Crutzen, Nobel Laureate for Chemistry (1995) Ozone depletion



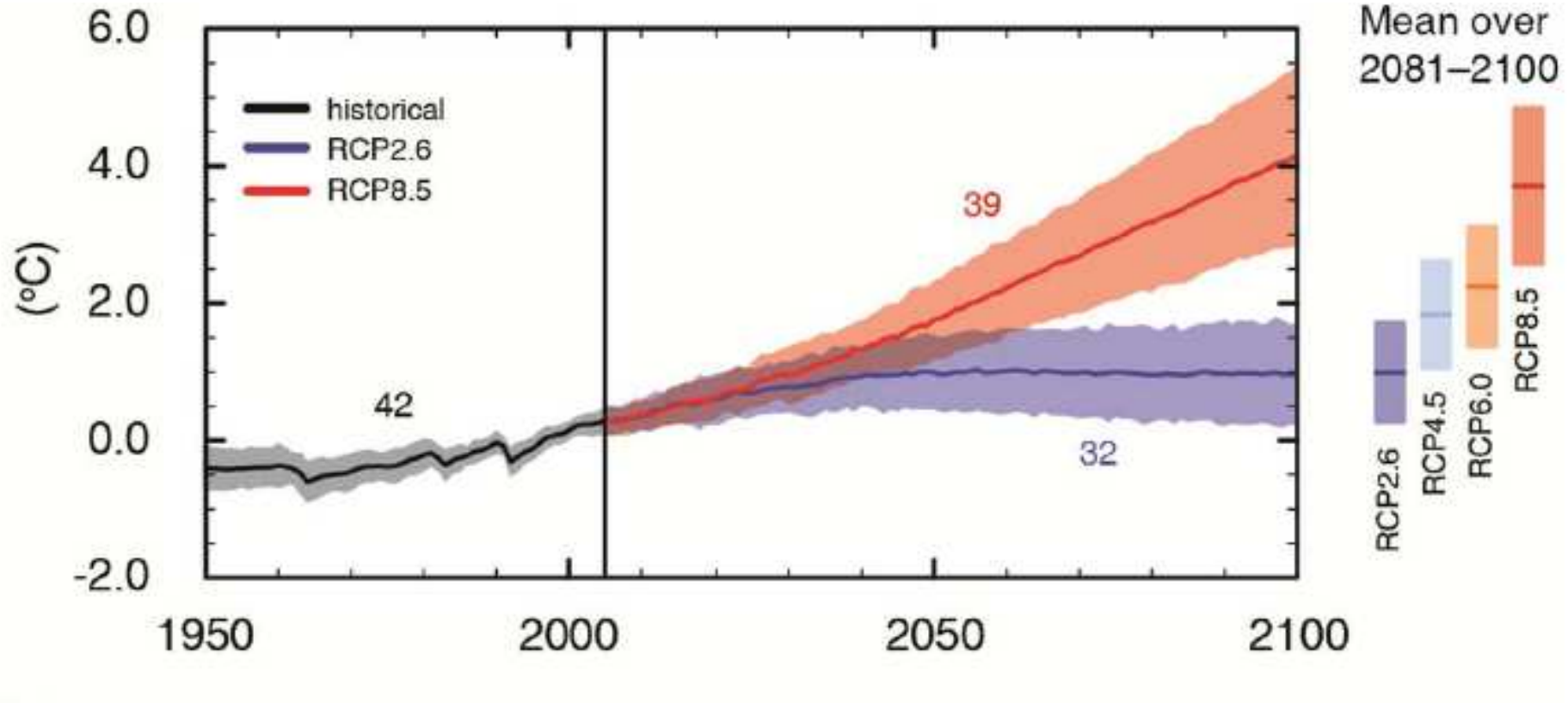
In Geology/geography: Holocene era of earth history since end of glacial period (10-12.000 years ago, Anthropocene, since industrial revolution (1784, J. Watt's invention of steam engine: anthropogenic climate change: burning of coal. oil, gas➔ GHG increase

Natural variability of climate vs. anthropogenic climate change

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

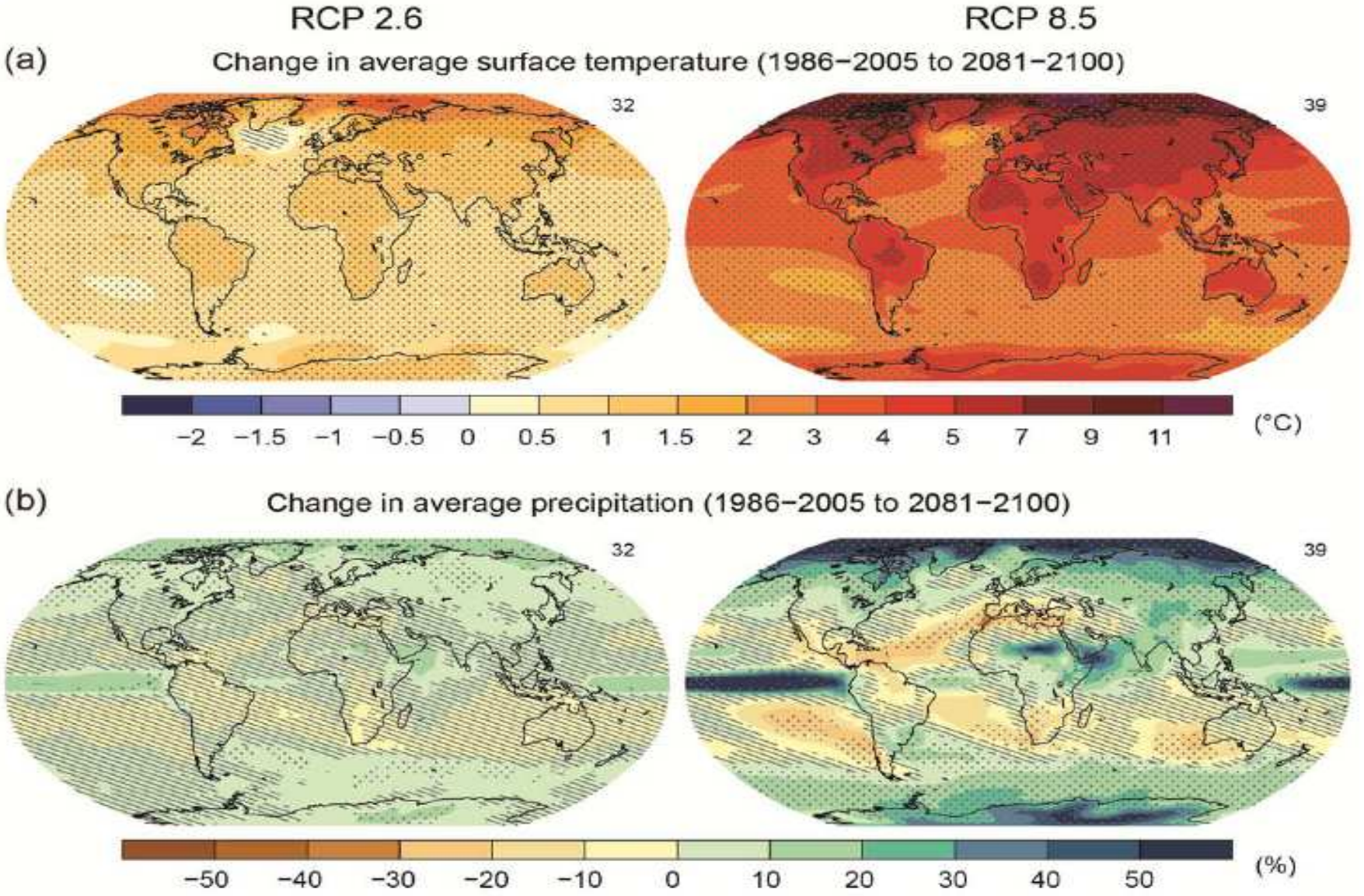


2.2. Anthropogenic Climate Change in the Anthropocene (1950-2100)

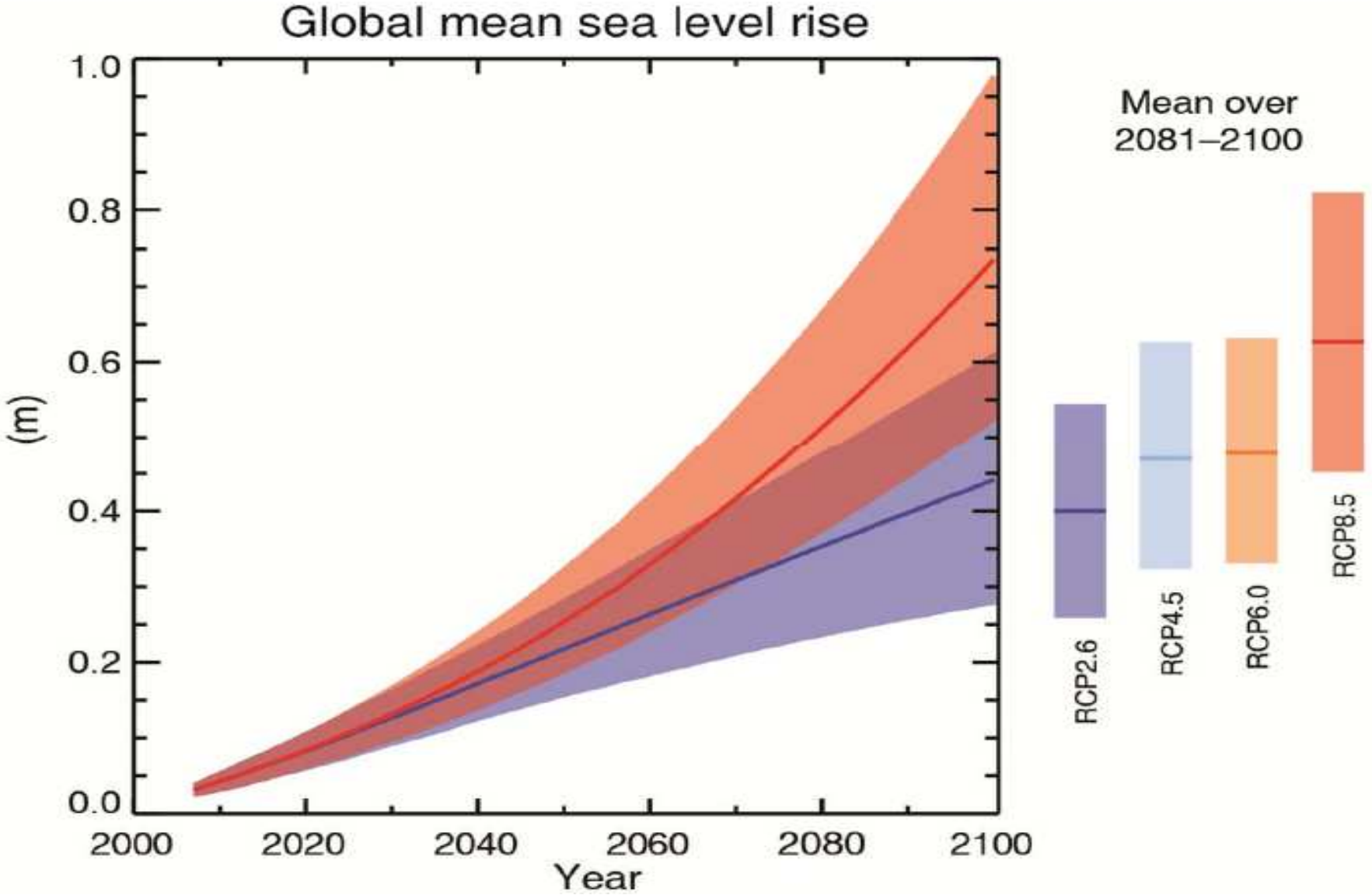


- **Three Regimes for Temperature Increase**
  - +2°C: **certain**: EU & G-8 Stablization goal (**Copenhagen COP 15)**
  - +4°C: **probable, without immediate Stabilizartion Measures**
  - +6°C: **possible** (business as usual) **(catastrophe scenario)**

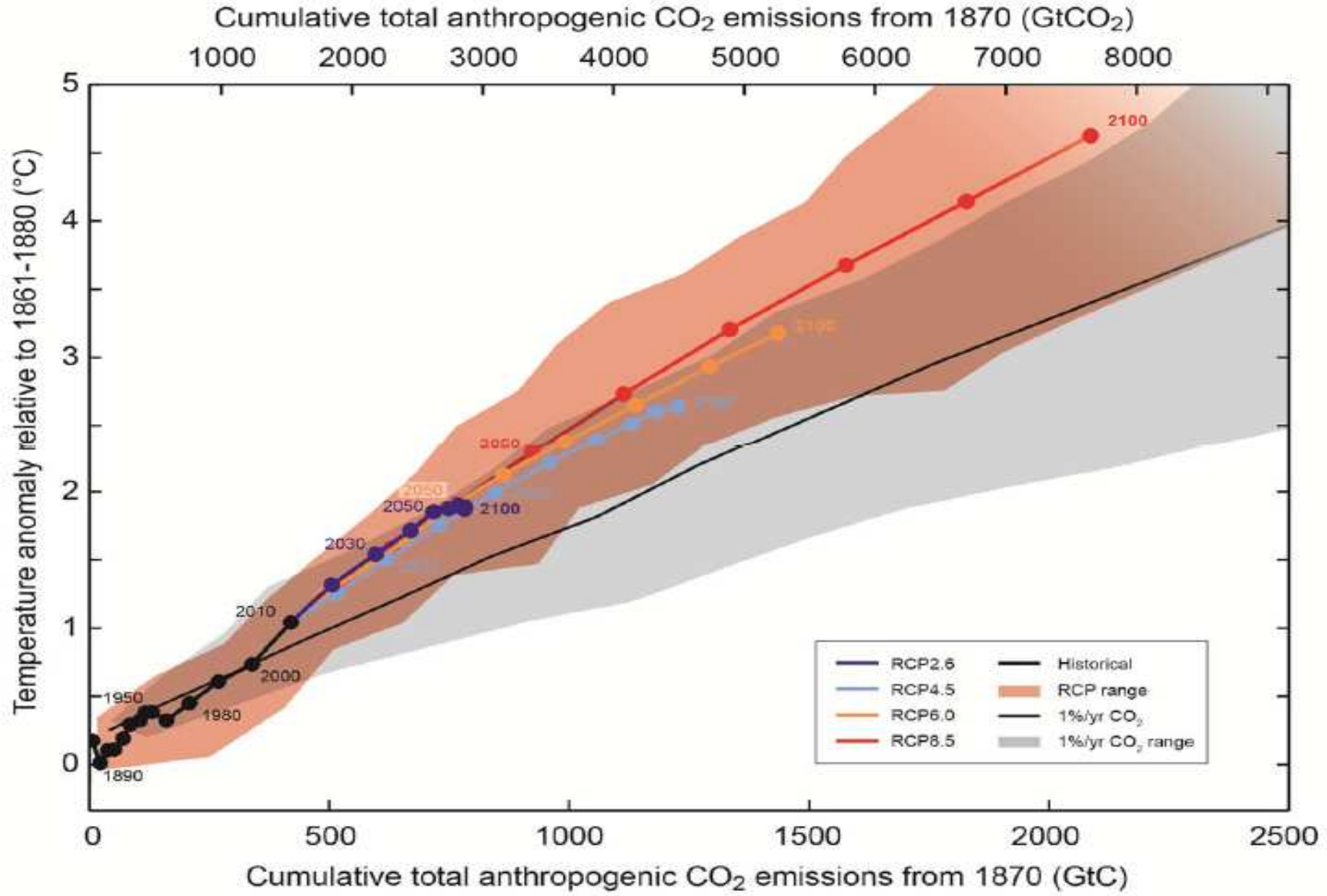
2.3. IPCC, AR5, WG 1 (2013)



2.4. IPCC, AR5, WG 1 (2013)

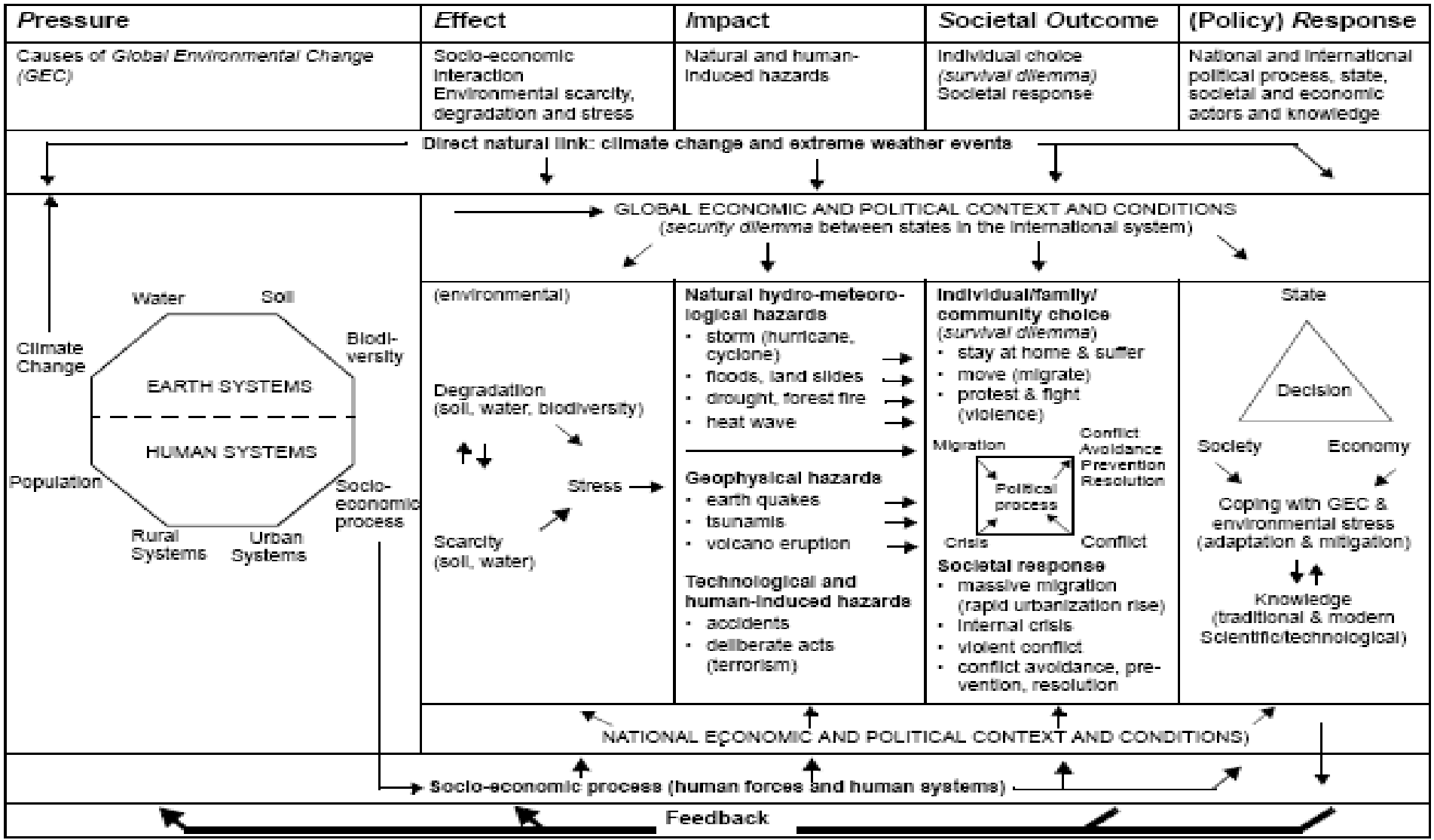


4.5. IPCC, AR5, WG 1 (2013)

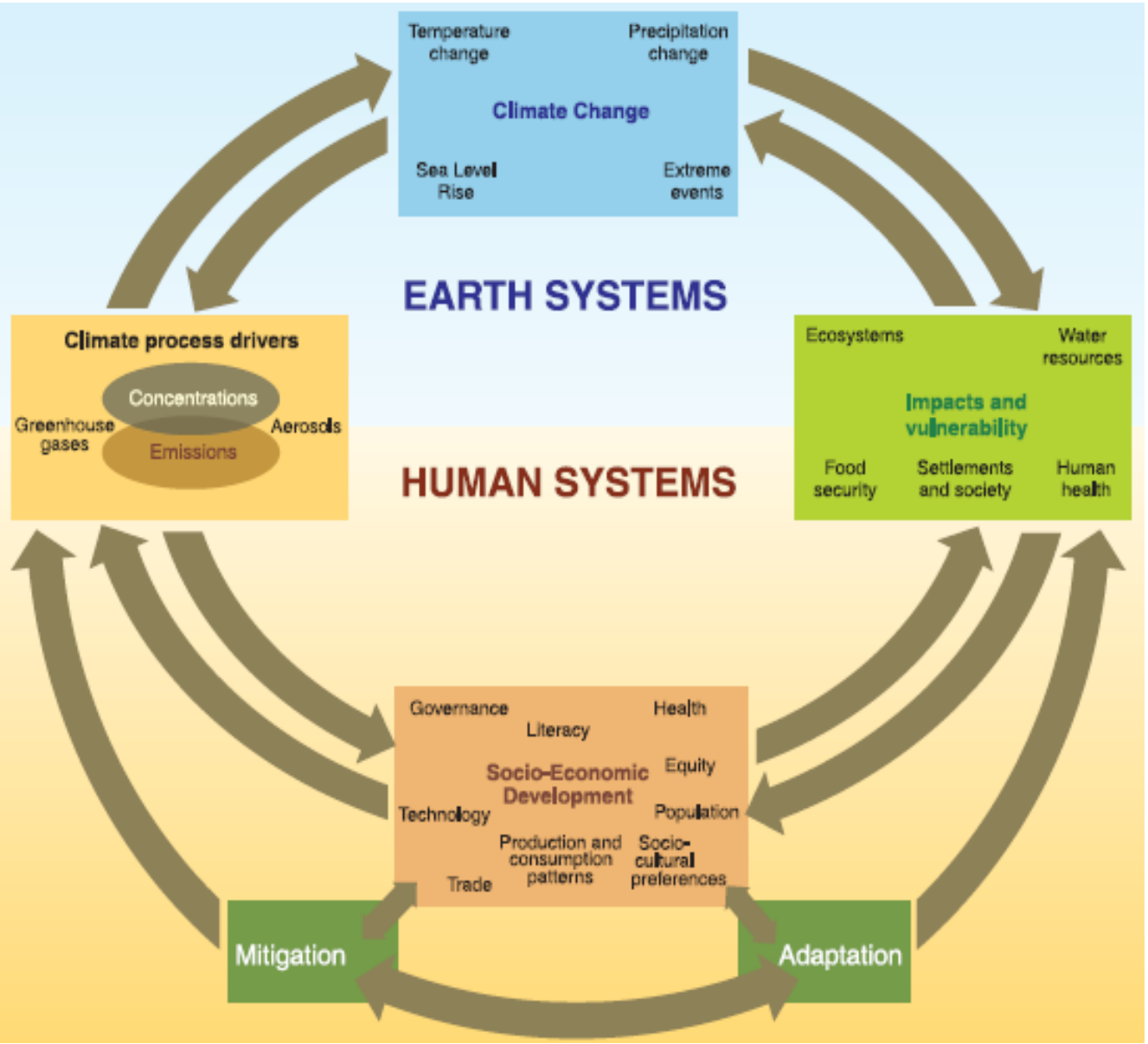


3. Earth/Human System & PEISOR Model

Stimulus response models: OECD, UNCSD, EEA



3.1. Pressure: Earth & Human Systems



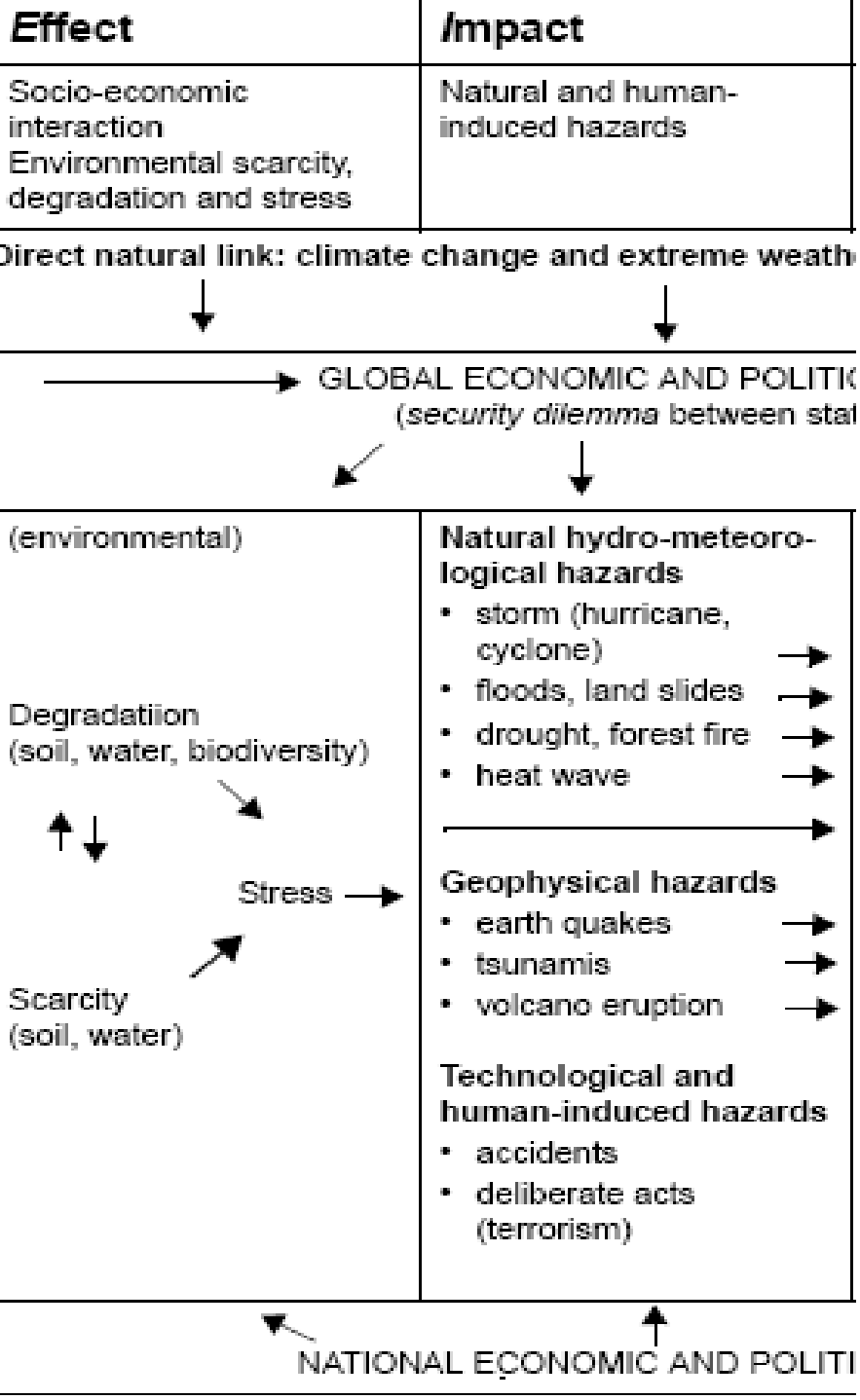
Interaction within climate system: Linear, non-linear, **chaotic** (tipping points of the climate system): crossing of thresholds:

–melting of glaciers in Himalaya,

–Indian Monsoon

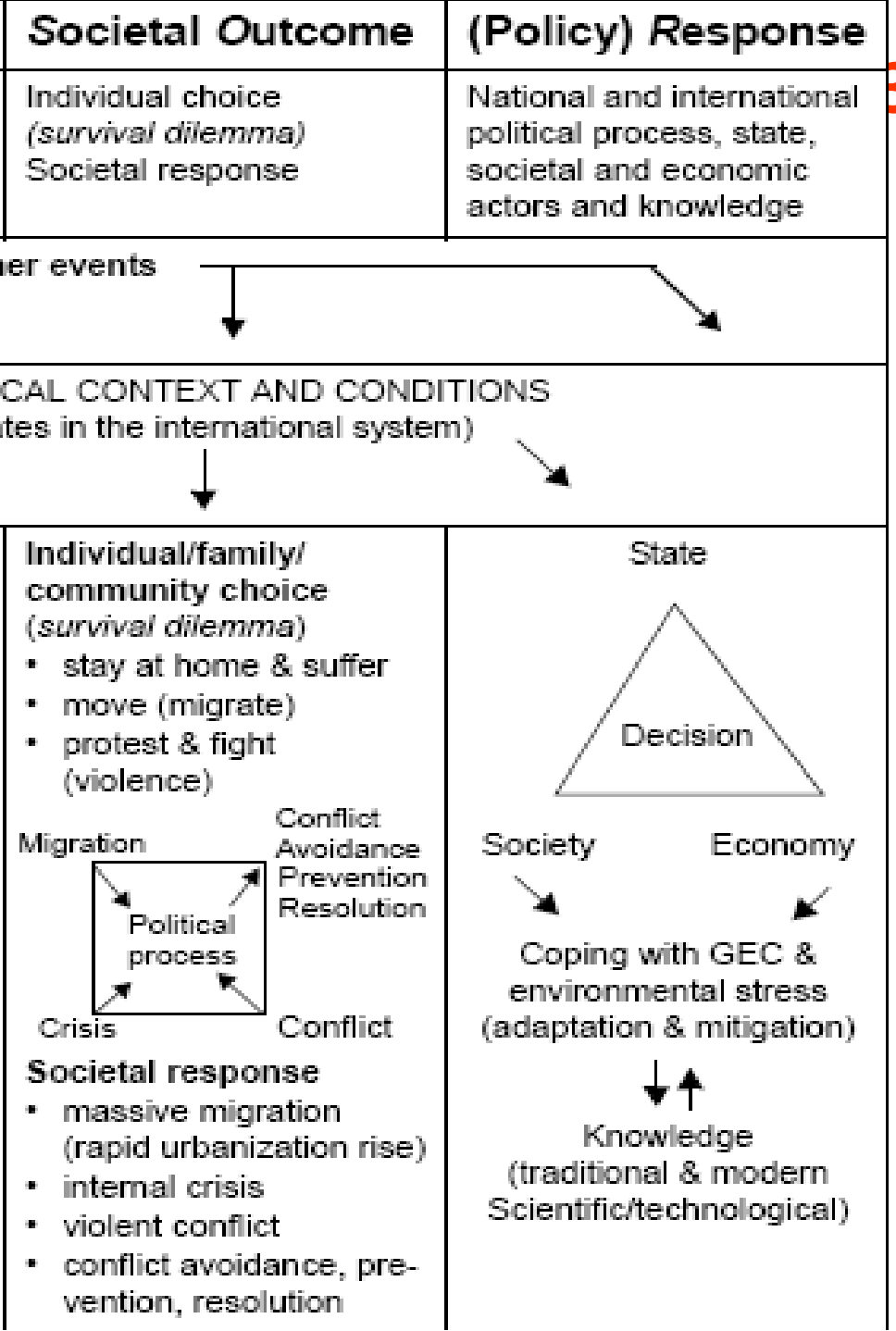
Physical effects of climate change:

- Temperature increase
- **Sea-level rise**
- Precipitation change
- **Extreme weather events (hazards)**



3.2. E: Effect & I: Impact

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



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 (labour,nomads)**
    - **Permanent**
  - **Crises: domestic**
  - **Conflicts:**
    - **Peaceful protests**
    - **Violent clashes**
  - **Complex emergencies**

4. Global Physical Effects to Climate Change

Climate Change Impacts: Temperature & Sea level Rise

- Global average temperature rise in 20th century: + 0.6°C
  for Asia,1970-2000 (1.0 °C)

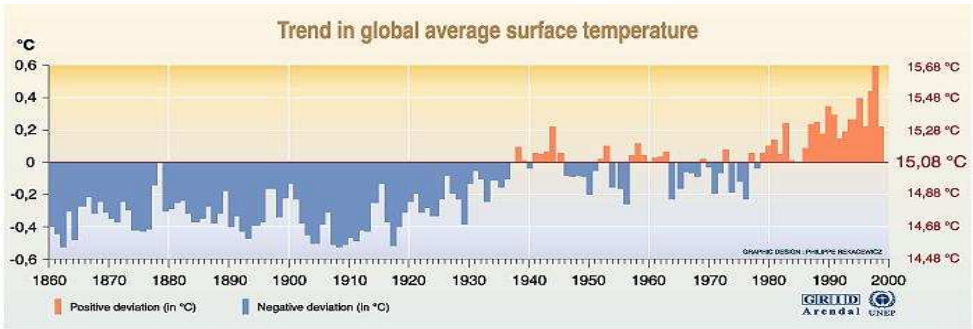
Projected temperature rise:

- TAR (1990-2100):+1.4-5. 8°C
- AR4 (07):+1.1-6.4 (1.8-4)°C
- AR 5 (2013) + 0.3-4.7 (+1-3.7) °C

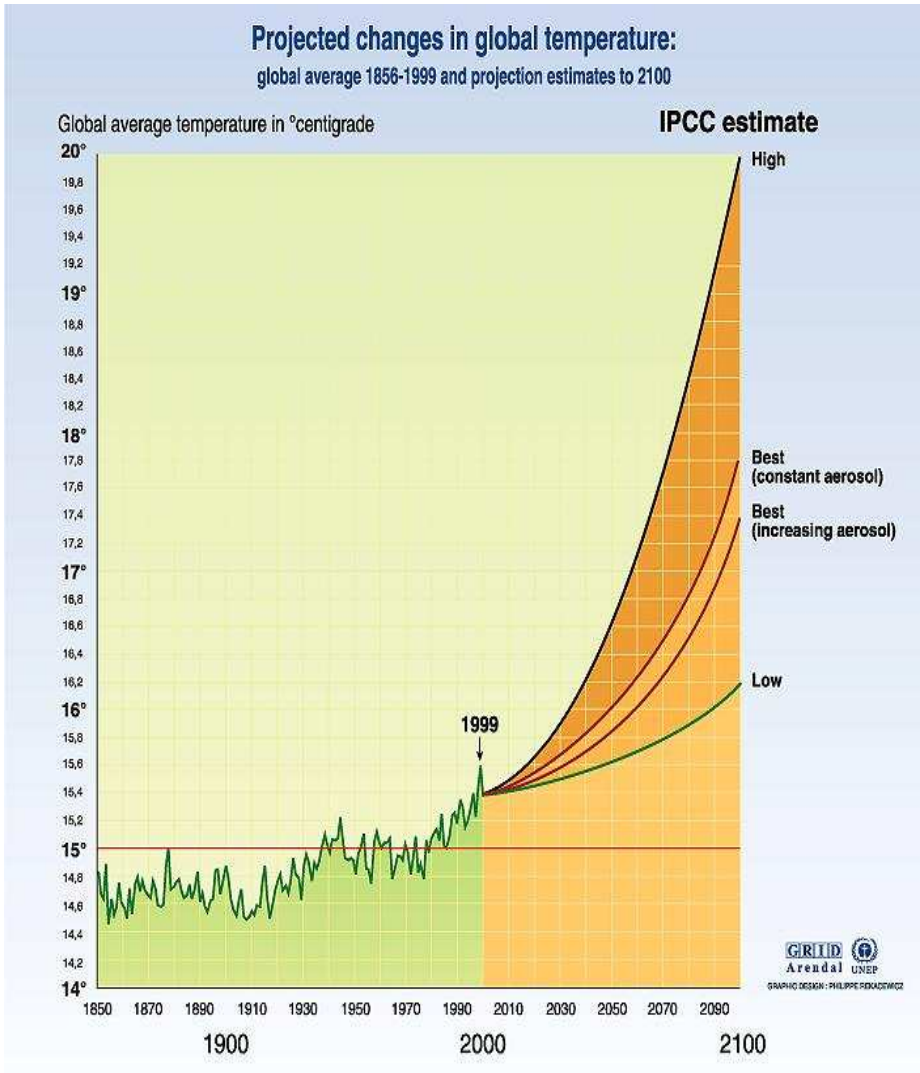
Sources: IPCC 1990,1995,2001,2007

Sea level Rise:

- 20th cent.: +0,1-0,2 metres
- TAR: 21st century: 9-88 cm
- AR4 (2000-2100): 18-59 cm
- AR5 (2000-2100): 26-82cm



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.

4.1. Tropical Cyclones: Threat to Megacities

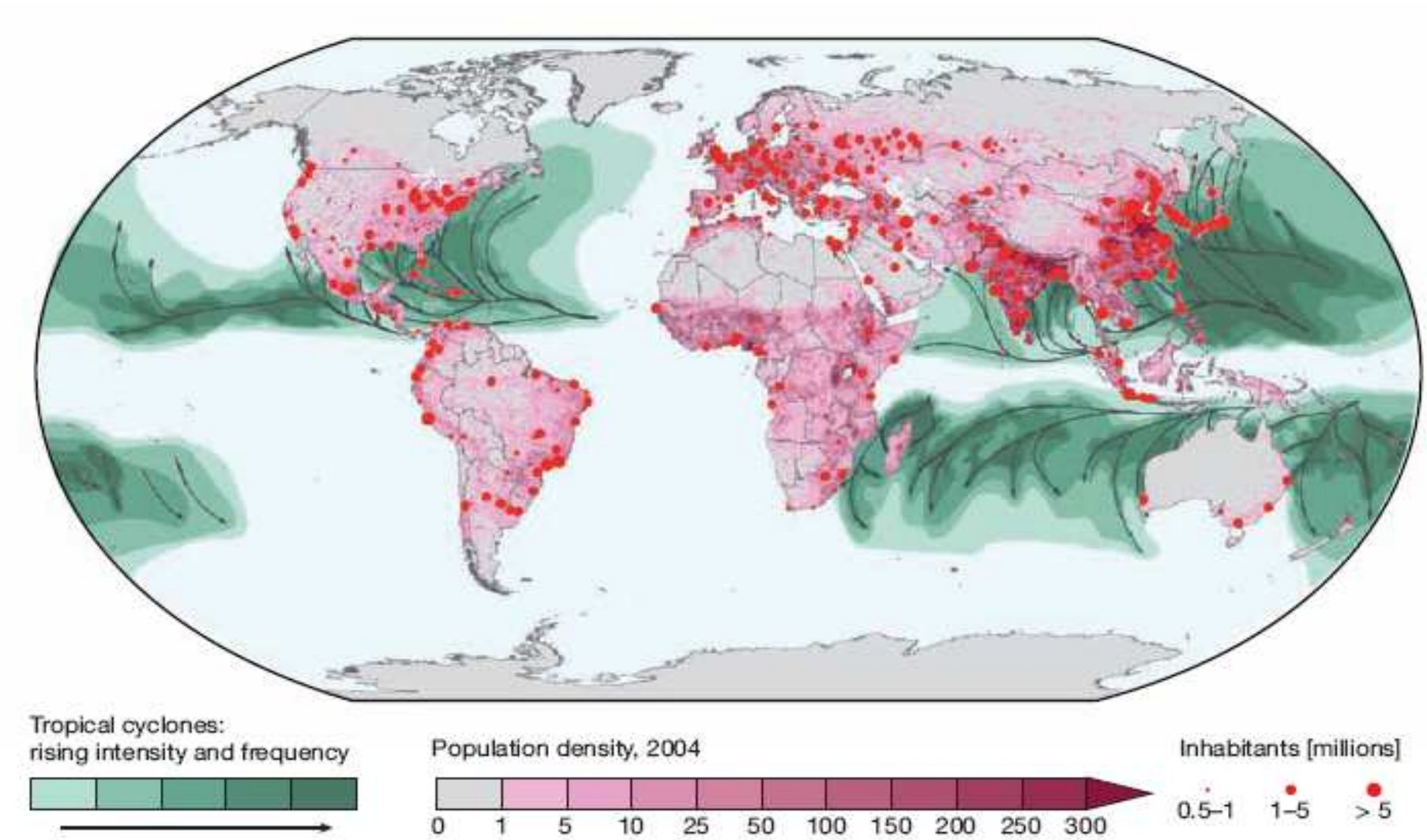
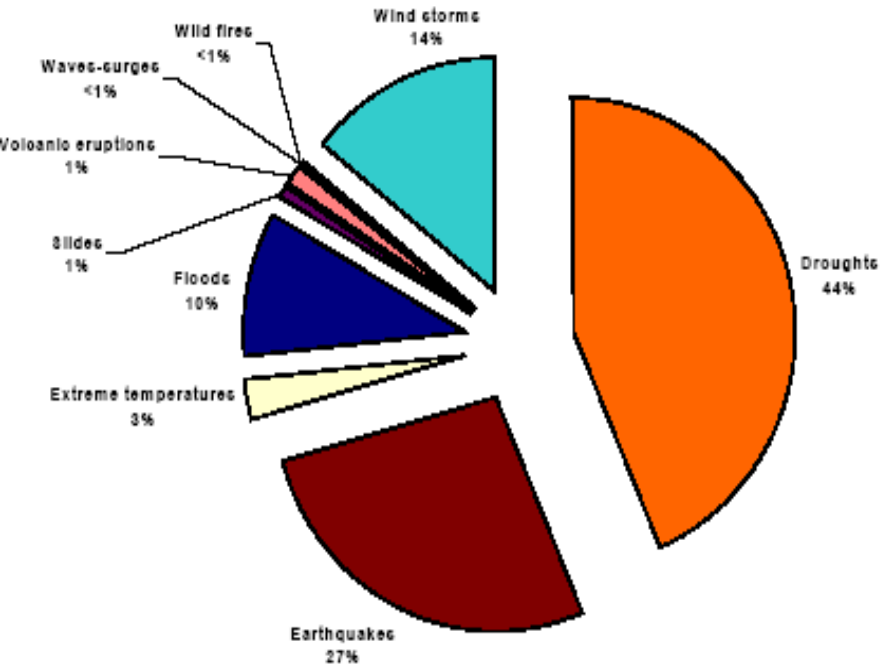


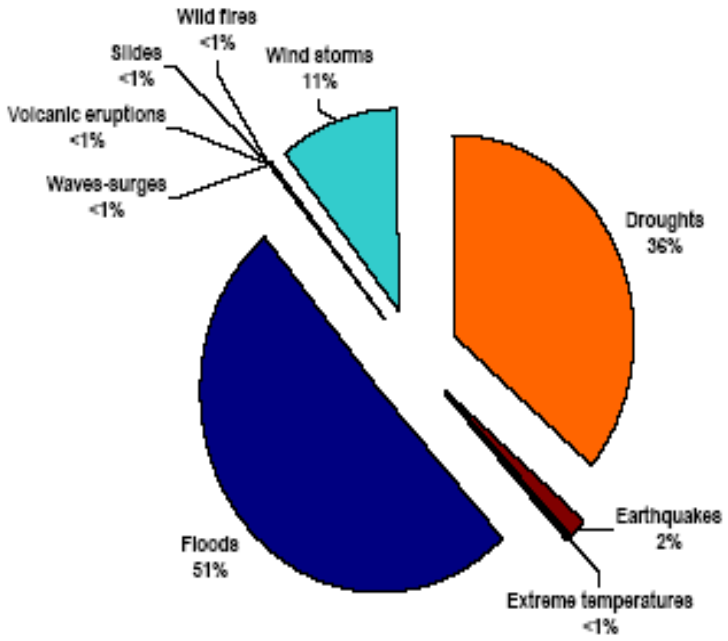
Figure 6.4-1
Tropical cyclone threat to urban agglomerations.
Cartography: Cassel-Gintz, 2006.
Source: WBGU

4.2. Natural Hazards Globally (1974-2003): Reported Death

2.066.273 persons

Affected persons: 5 076 494 541 persons





(1) injured + homeless + affected

Source: © Hoyois und Guha-Sapir (2004)

5. 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 constel-lations?

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

5.1 Knowledge Base: IPCC & SE Asia

On physical effects: IPCC (AR4, 2007) and (AR5, 2014)

- 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 Adelphi Consult)**
  - **USA: National Intelligence Council (2 studies)**

5.2. National Communications on Climate Change of ASEAN countries

Countries	First	2nd/3rd	IPCC,2001	IPCC,2007
Brunei	**None**	**None**	WG I & II: There are only very general references on tropical Asia but none on ASEAN and its two subregions **North:** Mekong River countries: Myanmar, Thailand, Laos, Cambodia, Vietnam **South:** Malaysia, Singapore, Indonesia, Brunei, Philippines	
Cambodia	8.10.2002			
Indonesia	27.10.1999	2011/2012		
Laos	2.11.2000	2013		
Malaysia	22.8.2000	**2011**		
Myanmar	**2011**			
Philippines	19.5.2000			
Singapore	21.8.2000	**2010**		
Thailand	13.11.2000	2011		
Vietnam	3.12.2003	**2010**		

5.3. Scenario Literature on SE Asia

On societal impacts (scenario analyses)

- Up to 2050: For EU Commission: Adelphi Consult
- 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

5.4. Potential Societal Impacts of the Physical Effects of Climate Change

- **Physical effects:**
  - Sea-level Rise
  - Temperature increase
  - Precipitation change
  - Extreme weather events
- **Societal Impacts**
  - Migration
  - Threats to human rights and human security
  - Domestic and International Crises
  - Domestic and International Conflicts (wars?)
  - Domestic and International Conflict Avoidance & Prevention

5.5. Knowledge Deficiencies

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

- **In physcial 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 capabilitiy
- **Important research factors are still unaccounted for**
  - E.g. in carbon cyle modelling
  - Ecoystem 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: piecemal, discipline, sector, political implications considered separately from physical effects.**
- **NIC proposes: integrated research into energy-economic-environmental- political conditions & possibilities**

5.6. Population Change in SE Asia (1950-2050)
Source: UN Populations Division (2009) + (2013) [2100]

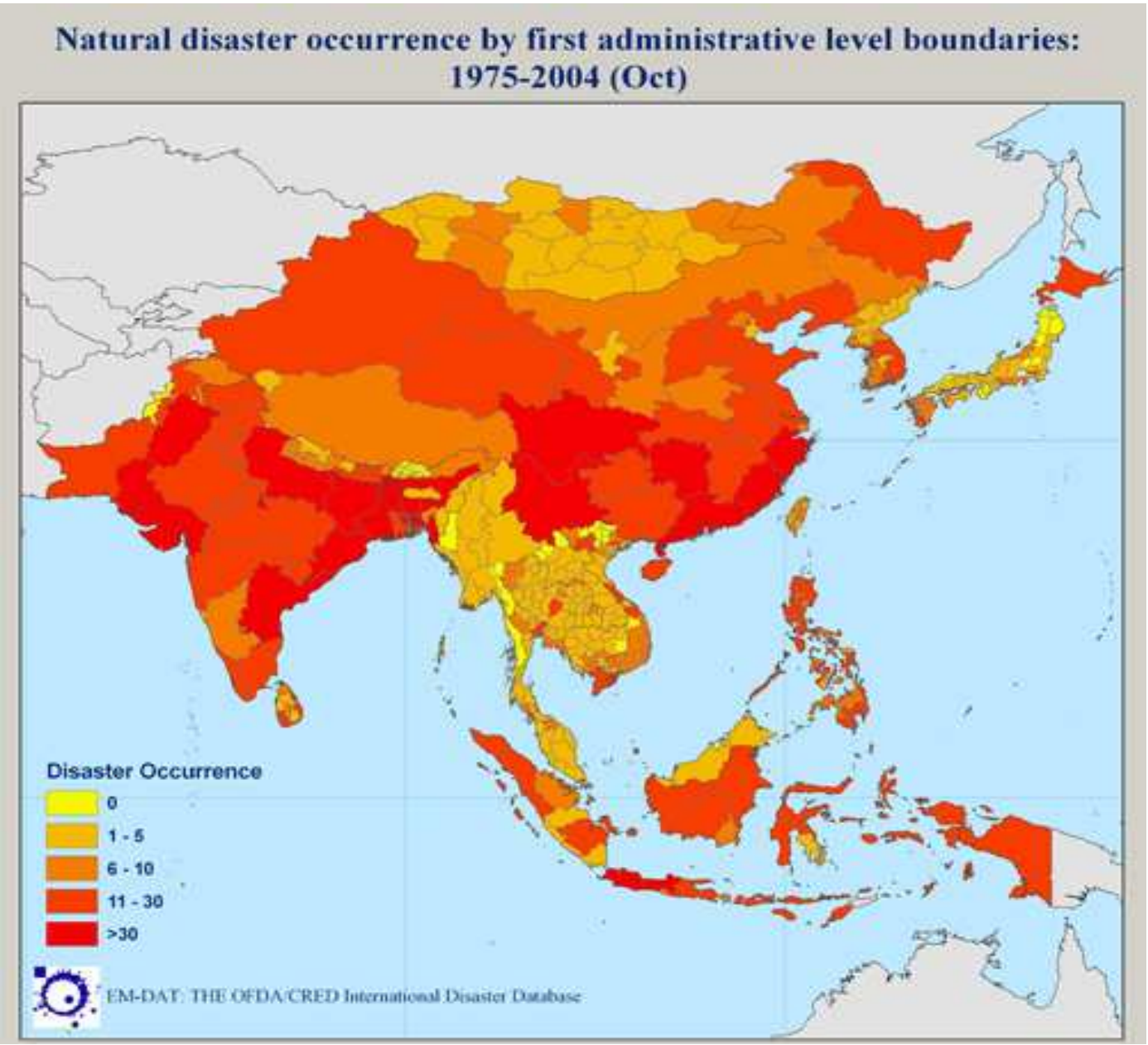
Countries	1950	2010	2030	2050
Brunei	48,000	407,000	547,000	658,000
Cambodia	4,346,000	15,053,000	20,100,000	23,795,000
Indonesia	77,152,000	232,517,000	271,485,000	288,110,000
Laos	1,666,000	6,436,000	8,854,000	10,744,000
Malaysia	6,110,000	27,914,000	35,275,000	39,664,000
Myanmar	17,158,000	50,496,000	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

5.7. Sea Level Rise as a Security Threat?
TAR (2001: p. 569)

Country	SLR (cm)	Potential land loss		Population exposed	
		km^2	%	million	%
Bangladesh	45	15,668	10.9	5.5	5.0
		29,846	20.7	14.8	13.5
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.
Vietnam	100	40,000	12.1	17.1	23.1

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.

5.8. Natural Disasters in Asia (EMDAT)



- SE Asia is not as highly affec-ted 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.

5.9. Climate Change Risk Index 2014

Source: Germanwatch 2013, http://germanwatch.org/en/download/8551.pdf

South East Asia & Central America & Caribbean

Table 1: The Long-Term Climate Risk Index (CRI): Results (annual averages) in specific indicators in the 10 countries most affected from 1993 to 2012.

CRI 1993–2012 (1992–2011)	**Country**	**CRI score**	Death toll	Deaths per 100,000 inhabitants	Total losses in million US$ PPP	Losses per unit GDP in %	Number of Events (total 1993–2012)
1 (1)	Honduras	10.17	329.80	4.86	667.26	2.62	65
2 (2)	Myanmar	11.83	7135.90	13.51	617.79	1.20	38
3 (5)	Haiti	16.83	307.50	3.45	212.01	1.73	60
4 (3)	Nicaragua	17.17	160.45	2.81	224.61	1.74	44
5 (4)	Bangladesh	19.67	816.35	0.56	1832.70	1.16	242
6 (6)	Vietnam	24.00	419.70	0.52	1637.50	0.91	213
7 (14)	Philippines	31.17	643.35	0.79	736.31	0.29	311
8 (10)	Dominican Republic	31.33	212.00	2.43	182.01	0.32	54
8 (12)	Mongolia	31.33	12.85	0.52	327.38	3.68	25
10 (9)	Thailand	31.50	160.35	0.26	5410.06	1.29	193
10 (11)	Guatemala	31.50	82.35	0.69	312.23	0.58	72

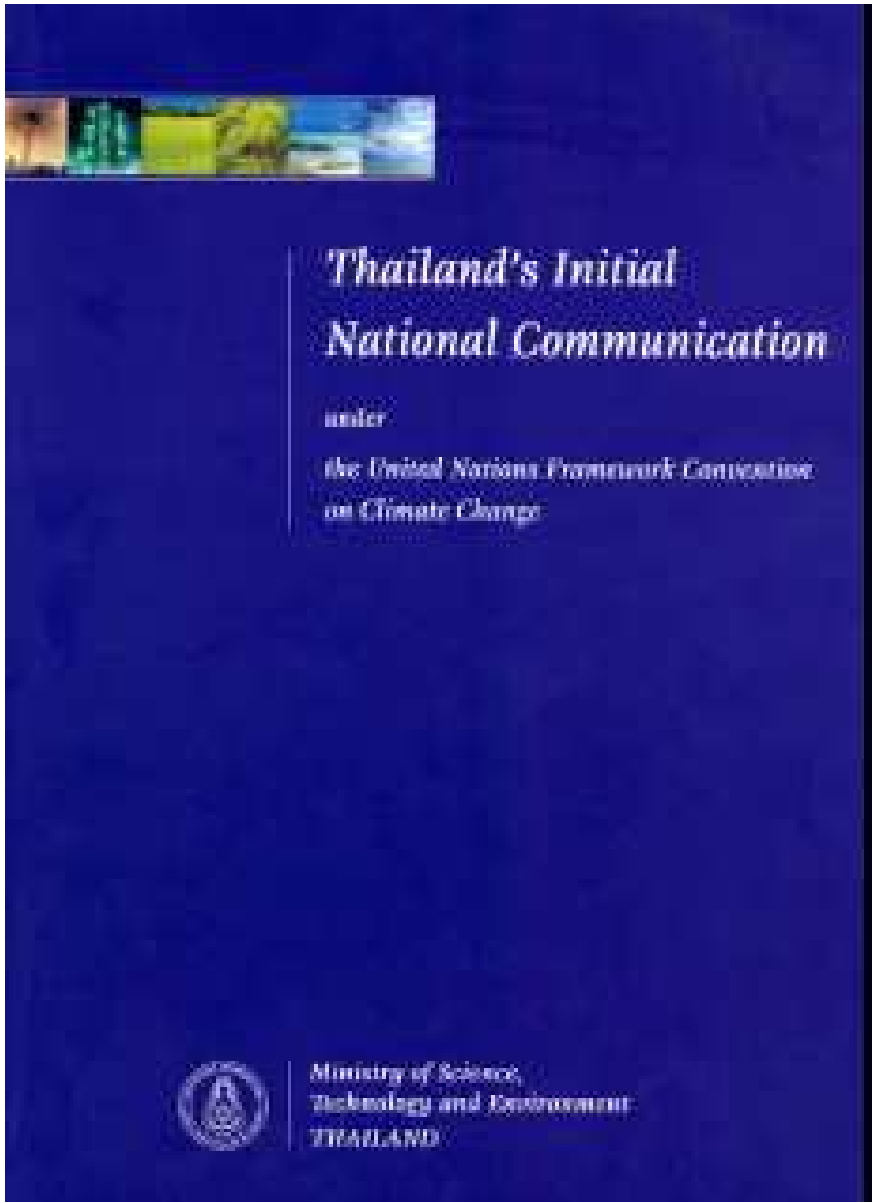
5.10. Climate Change Risk Index 2012

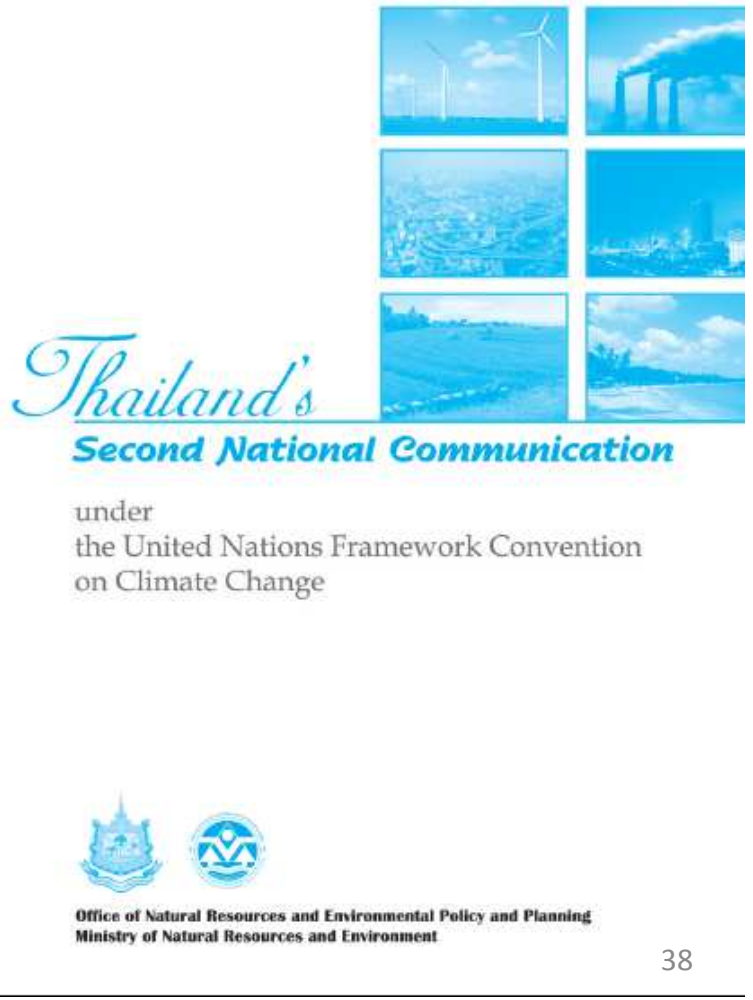
Source: Germanwatch 2013, http://germanwatch.org/en/download/8551.pdf

Table 2: The Climate Risk Index for 2012: the 10 most affected countries

Ranking 2012 (2011)	Country	CRI score	Death toll	Deaths per 100,000 inhabitants	Absolute losses (in million US$ PPP)	Losses per unit GDP in %	Human Development Index [a]
1 (37)	Haiti	6.83	128	1.23	1220.66	9.53	161
2 (4)	Philippines	10.33	1408	1.47	1205.48	0.29	114
3 (3)	Pakistan	12.67	662	0.37	6087.82	1.11	146
4 (22)	Madagascar	15.67	113	0.50	356.98	1.69	151
5 (131)	Fiji	17.00	17	1.89	135.55	3.18	96
6 (36*)	Serbia	17.67	28	0.39	1325.06	1.70	64
7 (131)	Samoa	18.33	6	3.28	220.91	19.57	96
8 (49)	Bosnia and Herzegovina	21.67	13	0.33	920.21	2.92	81
9 (95)	Russia	22.17	716	0.50	1365.20	0.05	55
10 (29)	Nigeria	22.33	405	0.25	837.45	0.19	153

6. Thailand – UNFCCC National Communications (2000->1994, 2011->2000)





6.1. Second National Communication to UNFCC (2011) Data for 2000

Main Greenhouse Gas	CO_2 emissions (Gg)	CO_2 removals (Gg)	CH_4 (Gg)	N_2O (Gg)
Total national emissions and removals	210,231.2	-52,374.0	2,801.5	40.0
1. Energy	149,914.6	0.0	413.9	2.5
2. Industrial processes	16,059.3	0.0	6.4	0.6
4. Agriculture			1,977.0	33.4
5. Land use change and forestry	44,234.1	-52,374.0	10.4	0.1
6. Waste	23.3		393.8	3.3

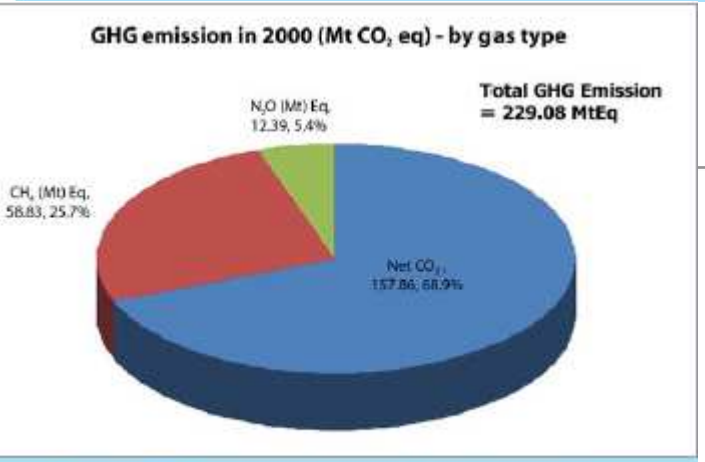
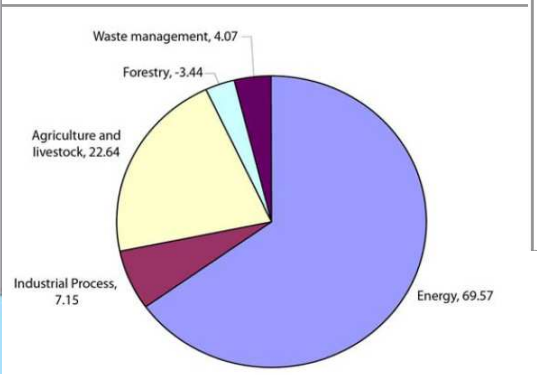


Figure 2-2 Emission by type of greenhouse gas in CO_2 equivalent, for 2000



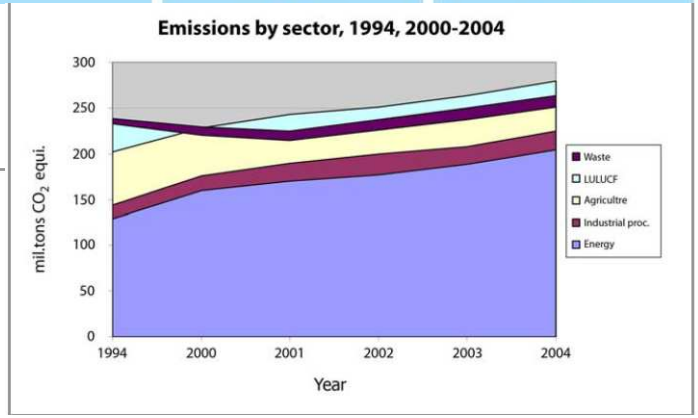


Figure A GHG emission by source in CO_2 equivalent, for 2000 (%)

6.2. International Energy Agency (2013) on Thailand‘s Emissions (1990-2010)

IEA (CO_2 Emissions from Fuel Combustion, 2012 (3/2013).

1)GHG emissions (sec. approach) 1990-2010: **World:+44.4%**

- Malaysia: +272%, Vietnam: +658%, China: +223.5%; **Thailand: +208.7%,** Singapore: 114.1% , **Asia: +160.4%**

•**Thailand 1990: 80.5; 2000: 158.1; 2010: 248.5 mio. tons of CO2**

2) Total primary energy supply (Mio. ton, oil equivalents)

Malaysia: +237.1%, Vietnam: +231.5%, China: +183.3%; **Thailand: 180,0+%,** Singapore: 184.3% , **Asia: 115.3+%**

3) Per capita emission by sector in 2010 (kg CO 2 / capita**):**

Total CO2 Emissions from fuel combustion: 6 514, Vietnam: 1 501, China: 5 395; **Thailand: 3 596,** Singapore: 12 395 , **Asia: 1 494**

Transportation: Malaysia: 1494, Vietnam: 348, China: 382; **Thailand: 801,** Singapore: 1580, **Asia: 237**

6.3. Disasters: Killed, Affected & Economic Damage

Disaster	Date	No Killed
Earthquake (seismic activity)	26-Dec-2004	8,345
Flood	5-Aug-2011	813
Storm	27-Oct-1962	769
Flood	19-Nov-1988	664
Earthquake (seismic activity)	Jun-1955	500
Storm	3-Nov-1989	458
Flood	10-Oct-2010	258
Flood	3-Jan-1975	239
Flood	1-Aug-1995	231
Flood	20-Aug-2006	164

Disaster	Date	No Total Affected
Drought	Apr-2008	10,000,000
Flood	5-Aug-2011	9,500,000
Flood	10-Oct-2010	8,970,653
Drought	Mar-2010	6,482,602
Drought	Jan-1999	6,000,000
Flood	30-Jun-1996	5,000,000
Drought	Feb-2002	5,000,000
Flood	1-Aug-1995	4,280,984
Flood	Oct-2002	3,289,420
Flood	3-Jan-1975	3,000,093

Disaster	Date	Dammage (000 US$)
Flood	5-Aug-2011	40,000,000
Flood	27-Nov-1993	1,261,000
Earthquake	26-Dec-2004	1,000,000
Storm	3-Nov-1989	452,000
Drought	Jan-2005	420,000
Flood	Dec-1993	400,100
Flood	Aug-1978	400,000
Flood	19-Jan-1984	400,000
Flood	10-Oct-2010	332,000
Flood	31-Oct-1993	319,850

Main Disasters in Thailand: recent & CC-related

6.5. 2nd National Communication (2011)

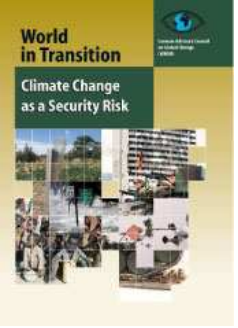
Table 3-2 Disaster and damages in Thailand, 2001-2006

Year		2001	2002	2003	2004	2005	2006
Storm	Frequency (times)	1,061	594	3,213	3,834	1,313	1,883
	Provinces (number)	70	67	76	76	57	65
	Household (number)	32,100	23,070	146,024	70,818	32,449	30,296
	Public utility loss (mil.baht)	501.0	213.3	457.4	398.4	148.9	92.4
Drought	Provinces (number)	51	68	63	64	71	61
	Household (number)	7,334,816	2,939,139	1,399,936	1,970,516	2,768,919	2,960,824
	Loss (mil. Baht)	72.0	508.8	174.3	190.7	7,565.9	495.3
Flood	Provinces (number)	60	72	66	59	63	58
	Household (number)	919,699	1,373,942	485,436	619,797	763,847	1,673,822
	Loss (mil.baht)	3,666.3	13,385.3	2,050.3	850.7	5,982.3	9,627.4

Source: Department of Disaster Prevention and Mitigation, Ministry of Interior

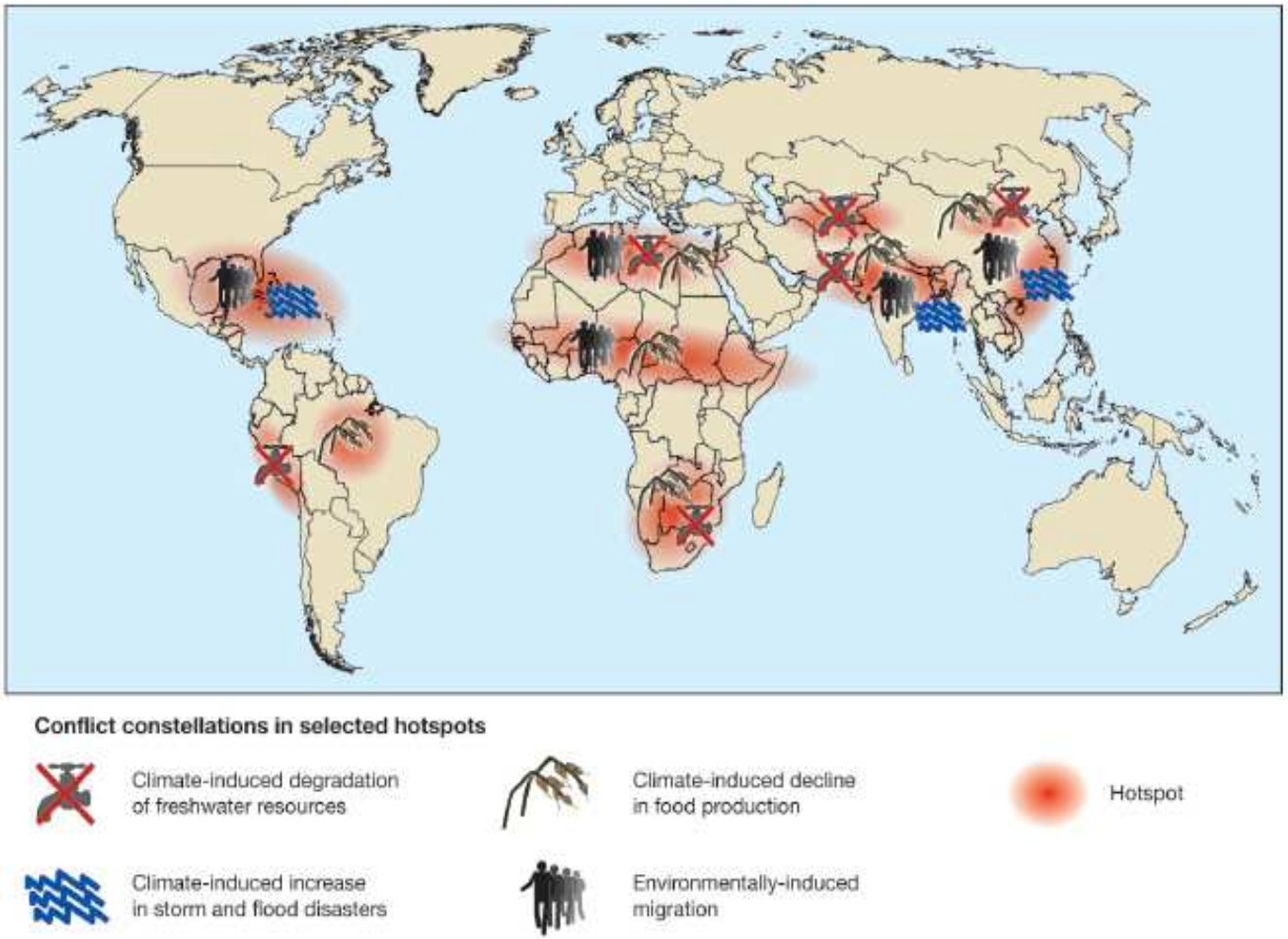
7. Potential Future Societal Impacts

- **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 construc-ted with some probability (WBGU approach) and**
- **Pathways to conflict may be assumed (Report of UN Secretary General, 11 September 2009)**



7.1. WBGU-Study: Climate ‚Hotspots': 4 Conflict Scenarios

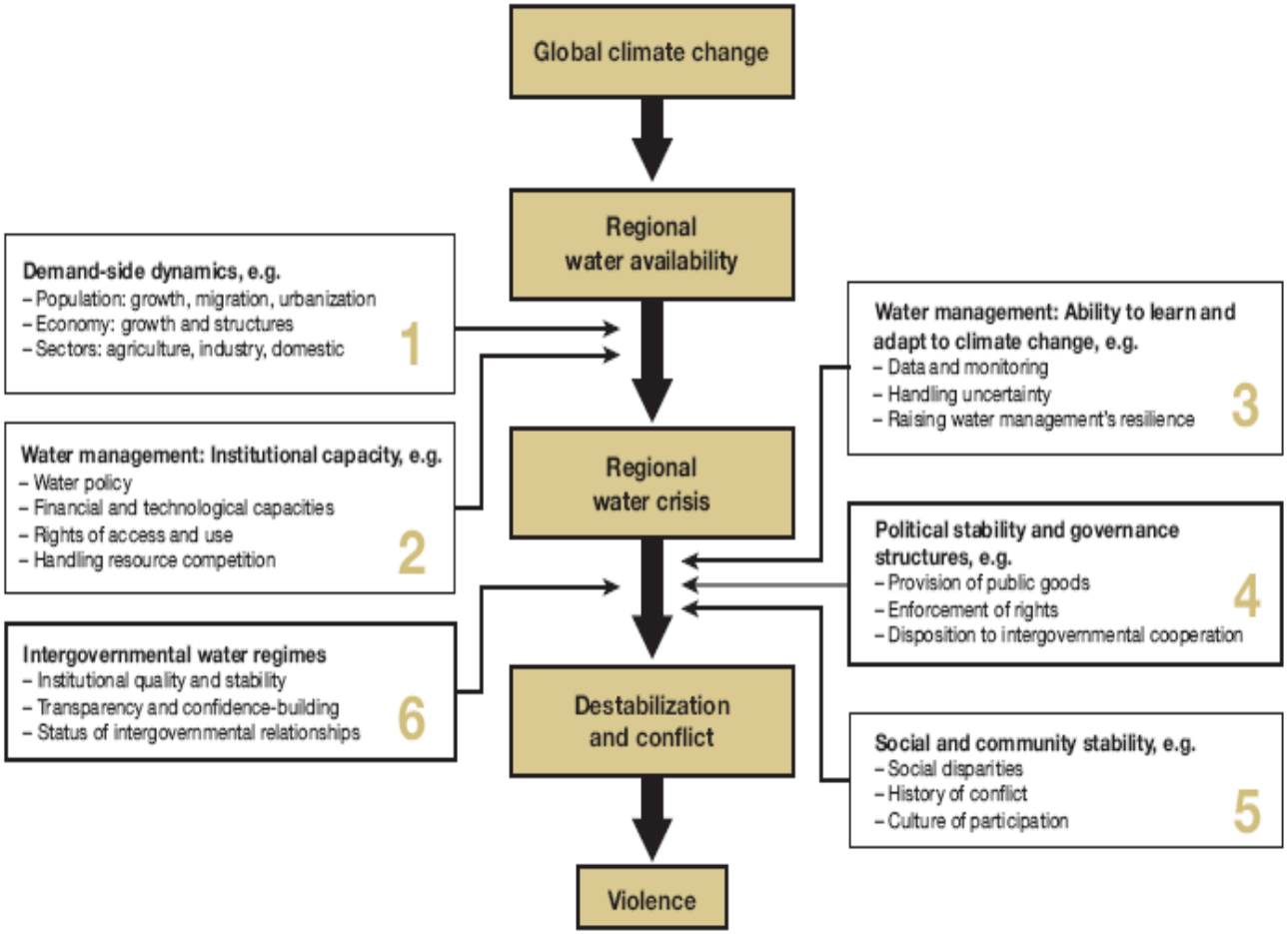
Figure 4.7: Regional hotspots and security risks associated with climate change. **Source**: WBGU (2008: 4). Reprinted with permission.



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

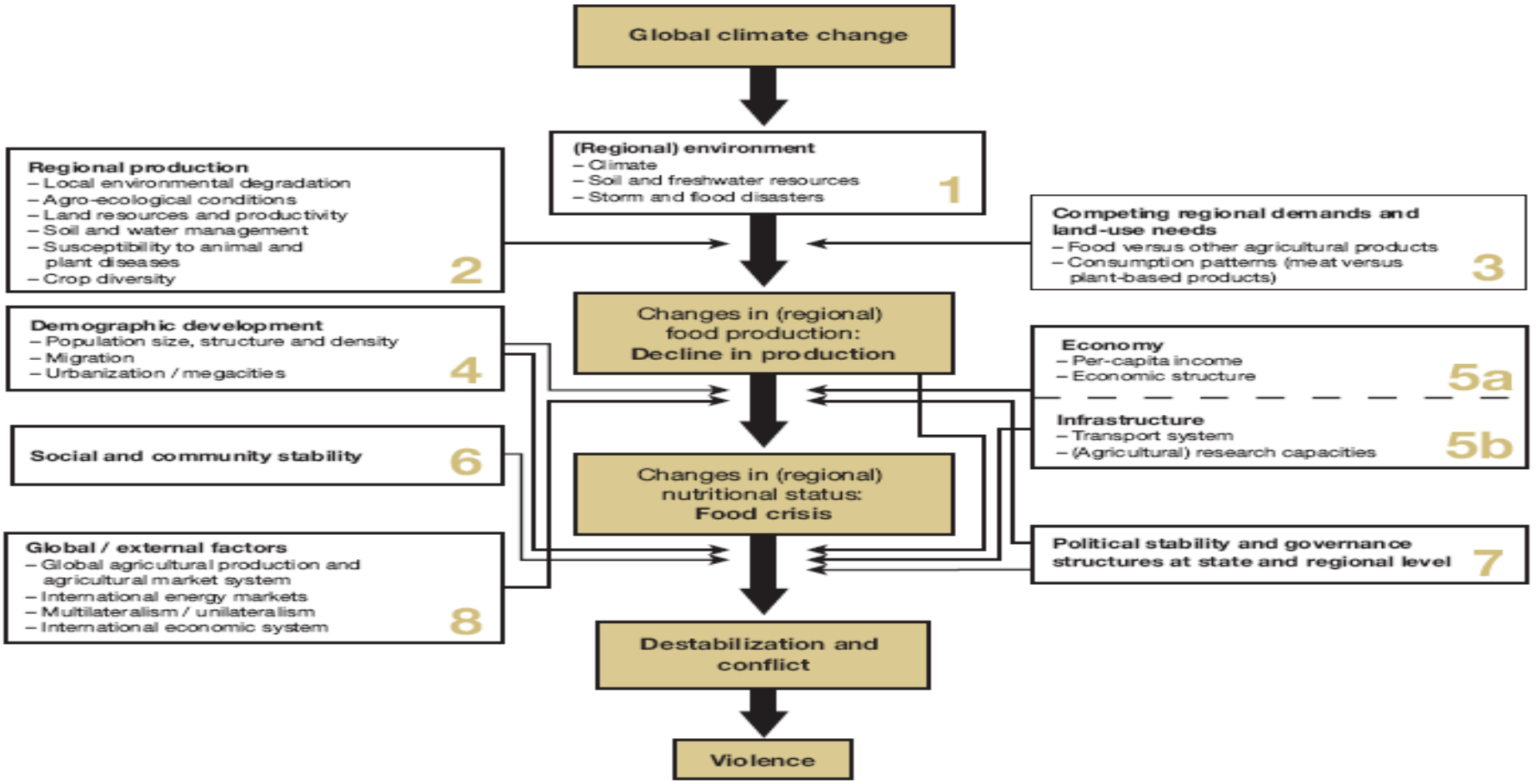
7.2. Conflict Constellation Climate-induced Degradation of Freshwater Resources



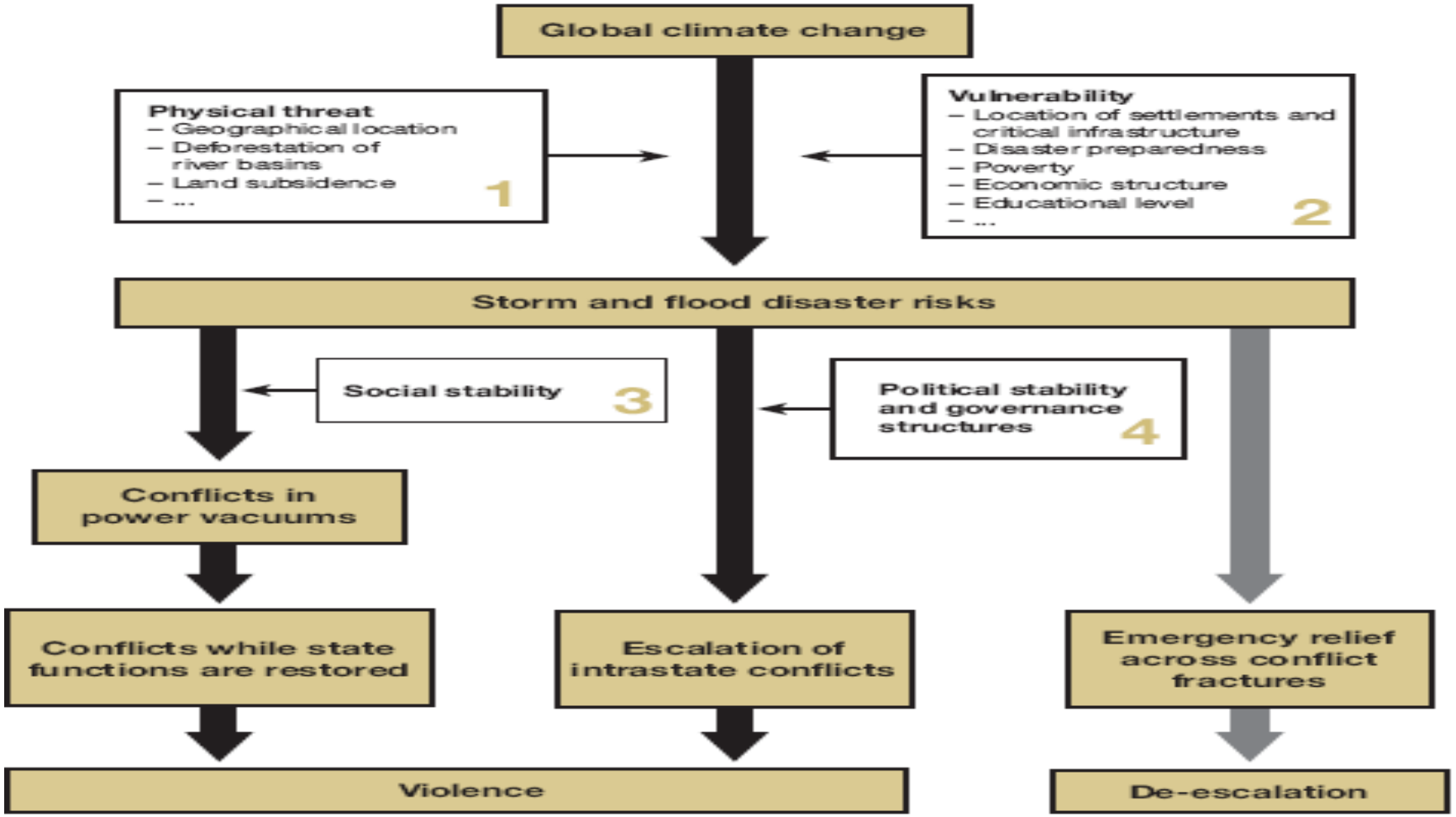
Relevant for states in Mekong River, especially for Laos, Cambodia, Vietnam

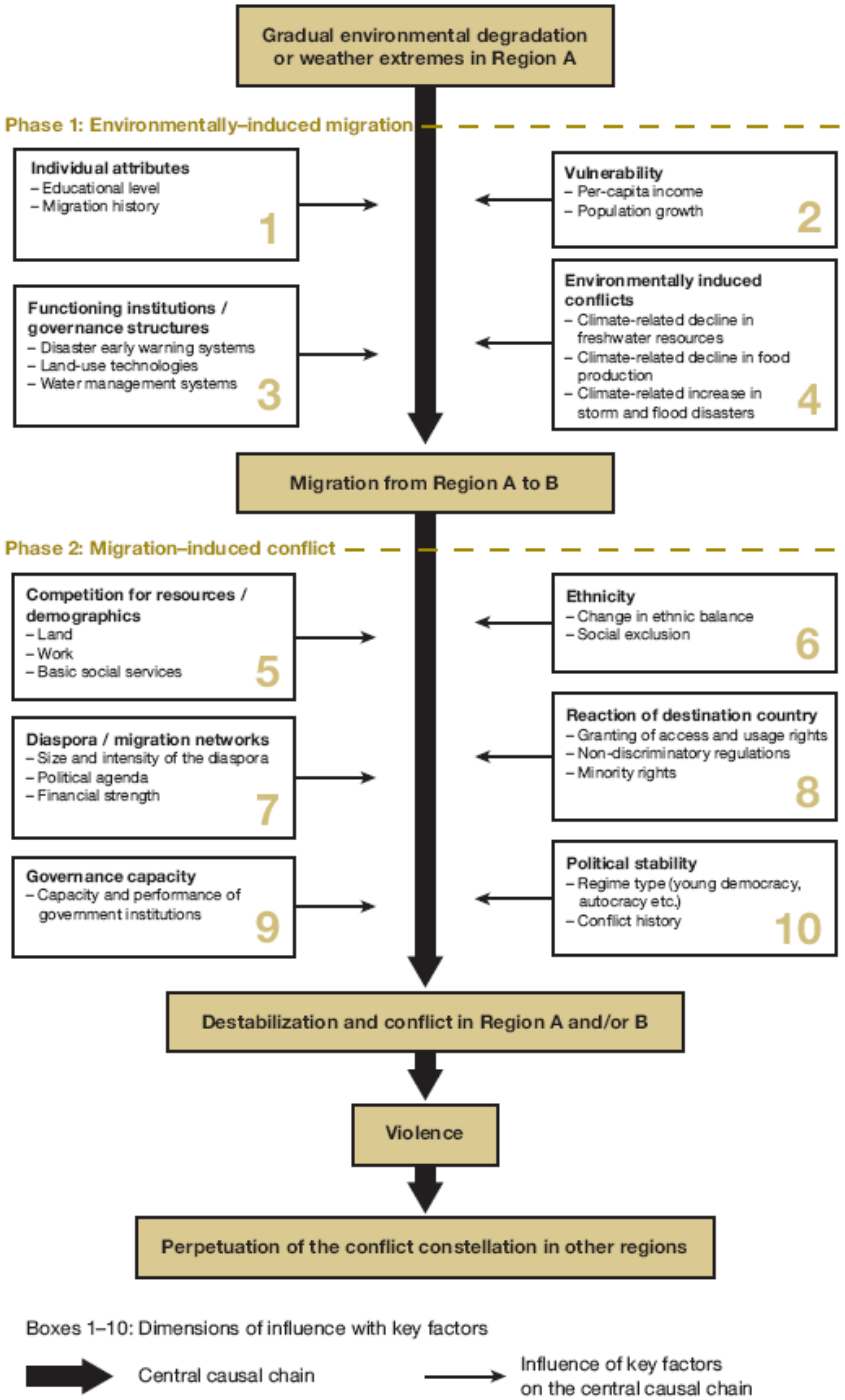
Myanmar, Thailand

7.3. Conflict Constellation Climate-induced Decline in Food Production



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

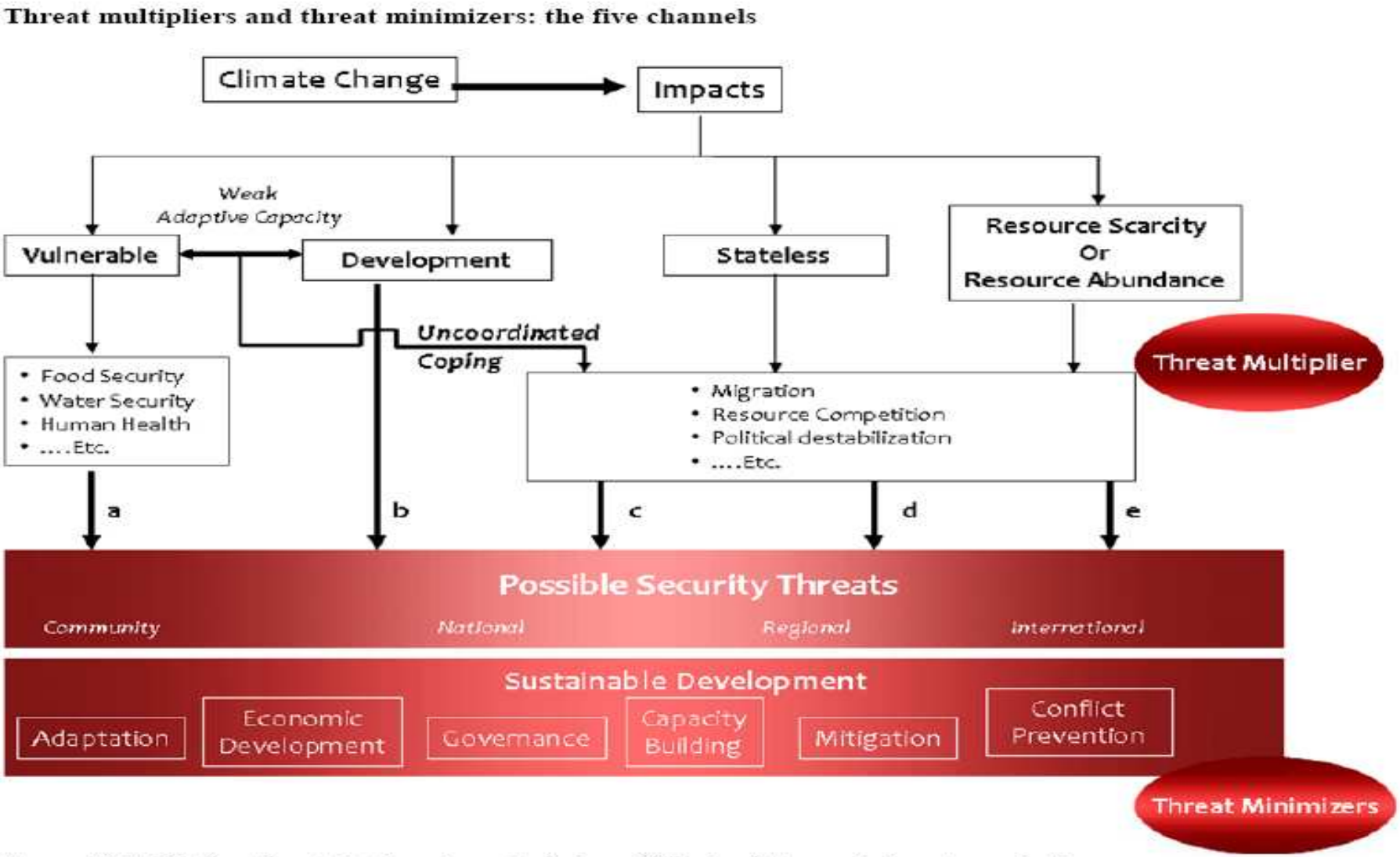




7.5. Conflict constellation "Environmentally-induced migration"

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

7.6. Pathways to Conflicts and Conflict Constellations

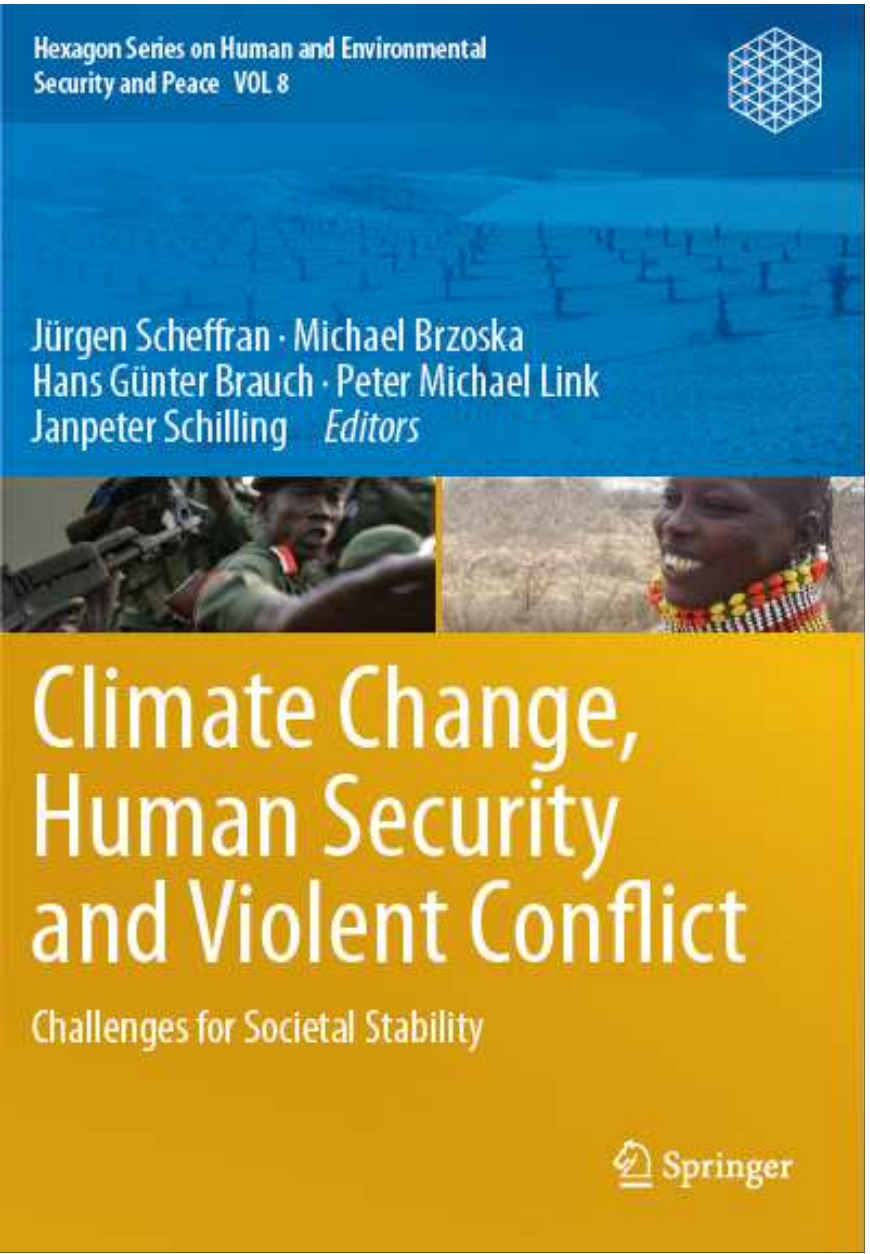


Source: United Nations Secretariat, based on submissions of Member States and relevant organizations.

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. Two Volumes on 2 Discourses:



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

Contents:

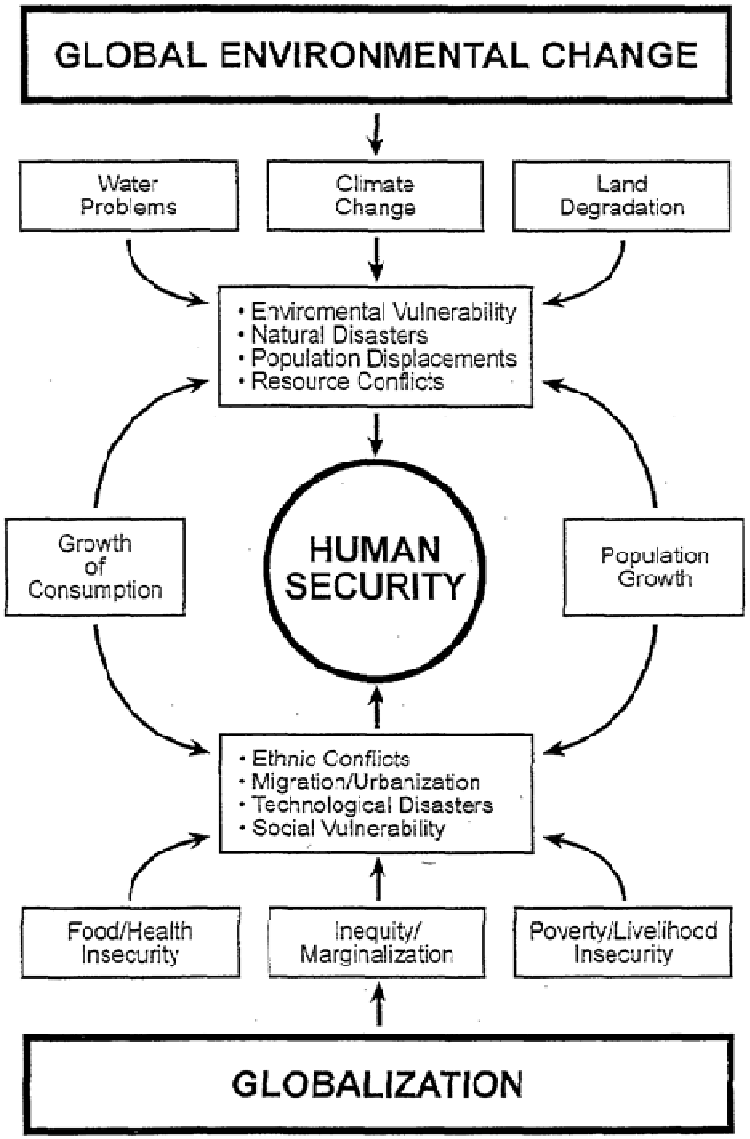
- Part 1: Introduction. –
- Part II: Climate Change, Human Security, Societal Stability, and Violent Conflict: Empirical and Theoretical Linkages. –
- Part III: Climate Change and the Securitization Discourse. – Part IV: Climate Change and Migration.
- Part V: Climate Change and Security in the Middle East. – Part VI: Climate Change and Security in Africa.
- **Part VII: Climate Change and Security in Asia and the Pacific.**
- Part VIII: Improving Climate Security: Cooperative Policies and Capacity-Building.
- Part IX: Conclusions and Outlook.
- **Brauch, Hans Günter; Oswald Spring, Úrsula et al.** (Eds.): **Sustainability Transition & Sustainable Peace workshops. Hex. Series, vol. 11**

8.1. Part VII: Climate Change and Security in Asia and the Pacific

9. Proposal for a Graduate Degree Programme

1. Introduction: Why: Impact & Resources
2. Focus: ASEAN Region (Policy coordination)
3. Developing a Mutidisciplinary University Degree Course possibly in cooperation with ADPC (Bangkok)
4. Sponsors: UNDP, UNEP, ASEAN & EU Commission
5. Goal: Career Preparation for DRM & DRRM (ASEAN)
6. Focus: Multidisciplinary & Policy Focused
7. Requirement: Internship with international, national or non-governmental DR(R)M organization
8. Financing: Fees & Contributions by sponsors
9. Goal: Mid Career People & Graduate Students
10. Several Universities: Chula, AIT, Kasertsat et al.

9.1. Dual Vulnerability in Southeast Asia



Bohle's (2002) concept of dual vulnerability

- **South East Asia** still has a high degree of **social vulnerability**
- **Environmental vulnerability** to the effects of extreme events cliamte change
- Thaiphuns/Cyclones, Floods, landslides, h4eat waves are projected to increase,
- **Sea-level rise may trigger major migration** trends from Bangladesh & Vietnam to neighbouring countries

9.2. Proposal for a Module on Climate Change, Disasters, Migration & Conflict

- **Background:** ASEAN‘s policy initiatives on climate change and disaster management
- **Focus & key themes of such a modul**:
- **Research orientation: interdisciplinary research (goal mitigation, adaptation & conflict prevention)**
- **Networking within Chulalongkorn University:**
  - **Cooperation: Climate change & social development cluster**
- **International cooperation:**
  - **Excellence cluster on climate change at Hamburg Univ. (Juergen Scheffran et al.)**

9.3. Module on Sustainability Transition: Sustainable Social Development

- **Joint module for both master programmes:**
  - Present MAIDS programme
  - Planned Disaster Risk Reduction Management (DRRM)
- **Proactive policies:**
  - **Address causes of climate change (carbon emissions)**
  - **Reduce the carbon footprint and create new alternative employment**
  - **Address the environmental impact of renewables to avoid that the solution creates new severe problems**

Thank you for your attention and patience

Contact: <hg.brauch@onlinehome.de

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http://www.afes-