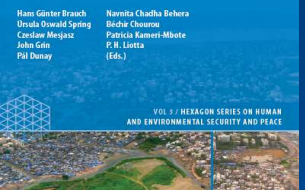

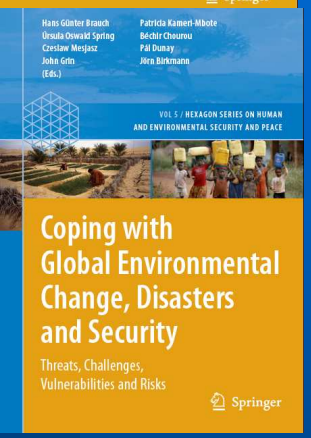

Universiti Kebangsaan Malaysia
National University of Malaysia

UKM

4 December 2012, 8.30 am - 11.30 pm (3 hours)

Graduates Seminar, Lecture Hall: 3F-201-
Politics and International Relations Students

Security Threats, Challenges, Vulnerabilities and Risks in US National Security Documents (1990-2010)

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Reading Texts

- **Text 5: Brauch, Hans Günter, 2011a: "Concepts of Security Threats, Challenges, Vulnerabilities and Risks", in: Brauch, Hans Günter; Oswald Spring, Úrsula; Mesjasz, Czeslaw; Grin, John; Kameri-Mbote, Patricia; Chourou, Béchir; Dunay, Pal; Birkmann, Jörn (Eds.), 2011: Coping with Global Environmental Change, Disasters and Security – Threats, Challenges, Vulnerabilities and Risks (Berlin – Heidelberg – New York: Springer-Verlag): 61-106.**
- **Text 6: Brauch, Hans Günter, 2011: "Security Threats, Challenges, Vulnerabilities and Risks in US National Security Documents (1990–2010)", in: Brauch, Hans Günter; Oswald Spring, Úrsula; Mesjasz, Czeslaw; Grin, John; Kameri-Mbote, Patricia; Chourou, Béchir; Dunay, Pal; Birkmann, Jörn (Eds.), 2011: Coping with Global Environmental Change, Disasters and Security – Threats, Challenges, Vulnerabilities and Risks (Berlin – Heidelberg**

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1. Introduction: ‘Reconceptualising Security: Stage 3’

- **The goal of this UNU-EHS publication (goal paper) is fourfold:**
  - **to reconceptualise security since 1990: a) change of international security order; b) theory guided changes in the social sciences; c) impact of new debates on global environmental change (GEC);**
  - **to review four security dangers: ‘threats’, ‘challenges’, ‘vulnera-bilities’ & ‘risks’ and use of these concepts in global environmental change, climate change, and hazards and disasters communities;**
  - **to discuss concepts for ‘environmental’ & ‘human security’ approa-ches on hydro-meteorol. natural hazards (storms, floods, drought);**
  - **to draw conclusions for future research and policy-making to enhance early warning of hazards and those most exposed to hazards, and thus reducing the risks increased by hazards like the trends toward urbanisation and the pressure of forced and distressed migration.**
- **Enhance synergies & mainstream related efforts of disaster prepared-ness & climate change adaptation & mitigation with goal to strengthen pro-active policy initiatives.**

2. Four Security Dangers: Threats, Challenges, Vulnerabilities & Risks

- 4 Buzzwords with many distinct meanings:
- Threats: 'hard sec.': military, political, economic, 'soft sec.': societal, environmental, (human);
- Challenges: all five dimensions of security;
- Vulnerabilities: all five dimensions: security, GEC, climate change, hazard community;
- Risks: multiple applications: 5 sec. dimensions: GEC, climate change, hazard community (sociology: risk society; political science, IR: risk politics; economics, psychology, geosciences)

2.1. Five Security Dimensions and Four Security Dangers

Scurity Dimensions➡ ⬇ Security Dangers	Military	Political	Econo-mic	Socie-tal	Environ mental	Human
Threat	Hobbesian perspective: national/alliance security during Cold War			Grotian perspective: wider security concept in post Cold War era		
Challenges	Narrow `hard´security concept			Wider `soft´ security concepts		
Vulnerabilities	Old and new security agenda: change in actors & meaning prior and after the Cold War				New agenda: GEC, Global warming, hazard and disasters	
Risks	multiple applications in scientific and political communities prior and after the Cold War					

3. Reconceptualising 'Security Threats' since 1990: The 'Term '

- 'Threat', 'menace' (Lat: 'trudere' push, thrust ; Fr.: 'menace'; It.: 'minaccia'; Sp.: 'amenaza' or: 'conminación'; Port: 'ameaça'; Ger.: 'Drohung' or 'Bedrohung'): "a communication of a disagreeable alternative to individual or group by one in authority".
- *Webster's Dictionary* ***threat***: "1. a statement or expression of intention to hurt, destroy, punish, in retaliation or intimidation, 2. indication of imminent danger, harm, evil; threat of war."
- *Longman* threat: "1. statement that you will cause someone pain, unhappiness, or trouble…;
  2. possibility that something very bad will happen;
  3. someone/something that is regarded as possible danger."
- *Compact Oxford English Dictionary* threat: "1. stated intention to inflict injury, damage, or other hostile action on someone;
  2. person or thing likely to cause damage or danger;
  3. possibility of trouble."

3.1. Security Threats in (Post) Cold War World

- Robertson: ‘threat assessment’: “reasons behind an opponent’s armament program-mes” during the Cold War “on a worst case basis”, where “besides personnel and hardware totals” the opponent’s strategic doctrine had also to be taken into account.
- Buzan: threat to state (capabilities) and ideas (ideology); Understanding threats means understanding state‘s vulnerabilities.
- Since 1990 threat perception has fundamentally changed. Threat refers to dangers the planet earth is confronted with due to manifold destructive potentials of the environment & global consequences.
- Steiner pointed to change in risks and threats with increased dangers of violent domestic wars and reduced effectiveness of arms control regimes. Increase in asymmetric warfare, increasing role of more sophisticated and brutal non-state actors (terrorists made security challenges more complex and security risks less calculable & predictable.
- German defence document (1994): “risk analysis of future develop-ments must be based on a broad concept of security … They must in-clude social economic and ecological trends and view them in relation to the security of Germany and its allies”.

3.2. New Security Threats in Post Cold War World

- **Ullman (1983):** environmental threats to US national security;
- **Brundtland Commission (1987):** „environmental ruine worldwide“;
- Al Gore (1992): strategic threats: Global warming & ozone depletion;
- **US-QDR 30.9.2001:** “shift … defence planning from a ‘threat-based’ to a ‘capa-bilities-based’ model in the future … ”
- **US National Security Strategy (2002):** Weapons of Mass Destruction, rogue states and terrorists and organised crime networks;
- **EU Solana Strategy (2003):** key threats: terrorism, WMD, regional conflicts, state failure, organised crime
- **UN High Level Panel on Threats (2004):** economic, social (poverty, infectious disease, *environmental degradation*, inter-state & internal conflict, WMD, terrorism and transnational organised crime.
- **Kofi Annan: In larger freedom (2005):** a) preventing catastrophic terrorism; b) organised crime; c) nuclear, biological & chemical weapons; d) reducing the risk and prevalence of war.

4. Reconceptualising ‘Security Challenges’: The ‘Term ’

- **Challenge: (Lat.: ‘calumnia’, false accusation; Fr.: ‘defi’; Sp.: ‘desafío’, ‘reto’; Port.: ‘desafio’; It.: ‘sfida’, ‘provocazione’; Ger.: ‘Herausforder-ung’); Synonyms: “confrontation, defiance, interrogation, provocation, question, summons to contest, test, trial, ultimatum”, “questioning, dispute, stand opposition; difficult task, test trial”.**
- ***British* English dictionaries: “1. something difficult … that tests strength, skill, or ability…;**
- **2. questioning rightness: a refusal to accept that something is right and legal; 3. invitation to compete: a suggestion to someone that they should try to defeat you in a fight, game etc.; 4. a demand to stop: a demand from someone such as a guard to stop and give proof who you are, and an explanation of what you are doing”;**
- **“a demanding task or situation”; as well as: “call to try one’s skill or strength; demand to respond or identify oneself; formal objection”;**
- **“a call to engage in a fight, argument or contest; a questioning of a statement or fact; a demanding or stimulating situation, career, etc”.**

4.1. New Security Challenges in Post Cold War World: UNU & TLC

- **Dodds & Schnabel (2001):** 'new','non-traditional' security challenges. Public's security environment has altered dramatically in new milennium." a) increasing level of globalisation; b) a growing sense of vulnerability to … remote threats, such as distant conflicts, contagions, crop failures and currency fluctuations."
- **Van Ginkel and Velasquez** (2001): environmental challenges: a) ozone depletion; b) impact of toxic chemicals on global ecosystem; and c) increasing greenhouse emissions d) "uncertainty about the future and an element of surprise". They stressed eight sub-themes: "global environmental governance, water, urbanization, industry and sustainability, global food security, energy requirements for the next millennium, global governance of biological diversity, land degradation, and the atmosphere."
- In a report of the **Trilateral Commission Slaughter, Bildt and Ogura** (2004): tried "to integrate traditional understandings of state security … with magnitude and importance of 'global security issues': terrorism, environmental degradation, international crime, infectious di-seases and refugees."
- **5 dichotomies:** "State security vs. human security; hard vs. soft interventions; legality vs. legitimacy; preemption vs. prevention; states vs. non-state actors."

4.2. New Security Challenges in Post Cold War World: Bailes (SIPRI)

- **Amb. Bailes (SIPRI):** human security challenges for Europe: "collapse of environment, pollution of food & natural resources, human & animal disease & genetic manipulation, employment, health care, social sec."
  - greenhouse effect, depletion of ozone, badly-handled migration, ageing of population, & energy crisis … case of a nuclear accident. …
  - Lesson is that many aspects of life in the EU which … are not normally thought of as security matters are highly relevant to the survival & welfare of our populations, ,,, because of the high level of development and interdependence we have attained.
  - The … harmonized approaches … should … be extended … to deal e.g. with climatic damage (drought, heat, storm and flood), major cases of pollution, and the interruption of any type of energy supplies.
- **Basic shift from military threats to manifold challenges** from all dimensions of a wide security concept. less urgent & non-violent *soft security* problems: migration, human & drug traffic. on the internal security agenda, topic for the home & justice ministries, police organisations & courts non-governmental societal groups. Migration a consequence of domestic conflicts from environmental degradation and resource depletion but it will remain difficult to distinguish *push* and *pull* factors.

5. Reconceptualising Security Vulnerabilities ': The 'Term '

- **English dictionaries:** synonyms 'vulnerability' (Lat.: 'vulnus' or: 'vulnerabilis'; Fr.: 'vulnérabilité'; It.: 'vulnerabile'; Sp.: 'vulnerabilidad'; Port.: 'vulnerável'; Ger.: 'Verwundbarkeit') or 'vulnerable': "accessible, assailable, defenceless, exposed, open to attack, sensitive, susceptible, tender, thin-skinned, unprotected, weak, wide open";
- "1. in danger: in peril, in jeopardy, at risk, endangered, unsafe, unprotected, unguarded; wide open; undefended, unfortified, unarmed, helpless, pregnable; 2. exposed to: open to, liable to, prone to, prey to, susceptible to, subject to, an easy target for; "non-immunity, susceptibility, danger of, insecurity, exposure, nakedness, helplessness".
- ***Webster's:*** "state or property of being vulnerable" where vulnerable refers to: "1. capable of being wounded or physically injured…;
- 2. open to criticism or attack…; 3. open to attack or assault by armed forces;
- 4. in contract bridge, liable to increase penalties and entitled to increased bonuses"; or "the quality or state of being vulnerable".
- ***British* dictionaries**: "someone who is vulnerable is easily harmed or hurt emotionally, or morally"; "susceptible to injury, exposed to damage by weapon, criticism, etc."; as well as: "open to temptation, censure etc."; as "unprotected against attack; liable to be hurt or damaged".

5.1. Vulnerability as a Scientific Concept

- **Geosciences:** referent object: human beings, children, & environment.
- Used by global change, climate change impacts & in disaster community.
- **Vulnerability:** "poverty, exclusion, marginalisation & inequities in material cons.", is generated by "social, economic & political pro-cesses".
- **O'Riordan (2002):** *vulnerability* at societal levels: "incapacity to avoid danger, uninformed of impending threat, to be so politically powerless & poor as to be forced to live in conditions of danger."
- **Oliver-Smith (2004)** "vulnerability: a political ecological concept. … it can become a key concept in translating that multidisciplinarity into the concrete circumstances of life that account for a disaster."
- **Disasters** "are channelled and distributed in the form of risk within society to political, social and economic practices and institutions. … Vulnerability is … located at interaction of nature and culture" that also links "social and economic structures, cultural norms and values and environmental hazards."
- **Wilches-Chaux (1989)** identified 11 types of vulnerability, "natural, physical, economic, social, political, technical, ideological, cultural, educational, ecological and institutional vulnerability."
- See the conceptual contributions by **Birkmann** and **Nathan (in this workshop).**

5.2. Vulnerability as a Scientific Concept in the Global Change Research Community

- **Vulnerability: useful framework for consequences of GEC on human societies.** Vuln. Assessment: risk of diverse outcomes given a variety of stresses that may reduce response capacity and adaptation to stressors.
- **Vulnerability to GEC:** risk of adverse outcomes to receptors or exposure units (human groups, ecosystems, communities) of changes in climate, environmental variables, & social conditions. … **Vulnerability is a multidimensional concept involving *exposure*; *sensitivity*; and *resilience*.** … Vulnerability can increase through cumulative events or when multiple stresses weaken the ability of a human group or ecosystem to buffer itself against future adverse events.
- **Complex vulnerability analyses can address "multiple causes of critical outcomes rather than only the multiple outcomes of a single event."** Current status of vulnerability research and assessment: potential for substantial synergy in addressing global environmental risks … & significant weaknesses which undermine the potential." **A major driver of GEC has been climate change where the 'vulnerability' concept has been extensively discussed.**

5.3 Vulnerability as a Scientific Concept in the Climate Research Community

- **Climate change impacts, adaptation *& vulnerability* have been analysed by the 2nd IPCC WG). Mandate: "assess vulnerability of ecological systems, socioeconomic sectors, & human health to CC."**
- **IPCC also distinguishes between *sensitivity*, *adaptive capacity & vulnerability* ("the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes").**

5.4. Vulnerability as a Political and Scientific Concept in the Hazard Research Community

- **Blaikie, Cannon, Davis and Wisner (1994, 2000) "Charac-teristics of a person/group in terms of capacity to anticipa-te, cope with, resist, & recover from impact of a nat.hazard.**
- **It involves a combination of factors that determine the degree to which someone's life and livelihood is put at risk by a discrete and iden-tifiable event in nature or in society.**
- **The implied opposite of vulnerable is indicated by … the term *secure*. … Since it is damage to livelihood and not just life and property that is at issue, the more vulnerable groups are those that also find it hardest to reconstruct their livelihoods following disasters. Vulnerability is closely correlated with socio-economic position."**
- **Many concepts & no consensus. Specification is needed!**

5.5. Vulnerability in the Environment, Development and Early Warning Community

- Peduzzi (2000), Early Warning Unit at UNEP/DEWA/GRID-Europe contributed to indicators for 'global vulnerability & risk mapping'. Risk: "a measure of the expected losses due to hazard event of a particular magnitude occurring in a given area over a specific time period" and *vulnerability* as "the degree of loss to each element should a hazard of a given severity occur" and as: "expected percentage of population loss due to socio-politico-economical context."
- In "*G*lobal *R*isk and *V*ulnerability *I*ndex", Peduzzi, et al. (2001): "Vulnerability: "extent to which a community, structure, service or geographic area is likely to be damaged or disrupted by the impact of a particular hazard". They separated vulnerability into
  - *Geophysical:* low evaluation along sea, high vulnerability to Tsunami;
  - *socio-economical* parameters: cultural, technical, economic factors using indicators as: GDP, literacy, life expectancy, corruption, population density, urban population growth, *mitigation capacities*.
- Vulnerability cannot be directly measured but estimated by socio-economic variables & compared to actual disaster losses.
- Major goal of Peduzzi's group & UNU-EHS: vulnerability indicators.

5.6. Vulnerability Indicators

- **Peduzzi et al.** broadened scope of their *vulnerability indicators &* distinguished two types of hazards: drought, and floods, cyclones and earthquakes; and nine categories of vulnerability:
  - 1) *economic* (GDP, HDI, debt, inflation, unemployment);
  - 2) *type of economic activities* (arable land, urban population, % of agriculture's dependency for GDP, of labour force in agricult. sector);
  - 3) *dependency and quality of the environment* (forests, woodlands, % of irrigated land, human induced soil degradation: GLASOD);
  - 4) *demography* (population growth, urban growth, population density);
  - 5) *health and sanitation* (calorie supply per person, access to sanitation, safe water, physicians, hospital beds, life expectancy, mortality rate of under five year olds);
  - 6) *politics* (corruption);
  - 7) *early warning capacity* (number of radios);
  - 8) *education* (illiteracy, school enrolment, secondary, labour force with primary, secondary or tertiary education); and 9) *development* (HDI).

5.7. UNDP Disaster Risk Index (DRI)

- **UNDP report: *Reducing Disaster Risk – A Challenge for Development* (2004) includes a *Disaster Risk Index* (DRI) which provides decision-makers with an overview of risk & vulnerability levels in different countries. This risk is measured in terms of number of deaths during disasters. The Report has defined 'human vulnerability' as a**
  - **human condition process resulting from physical, social, economic & environmental factors, which determine the likelihood and scale of damage from the impact of a given hazard. In the DRI, human vulnerability refers to the different variables that make people more or less able to absorb the impact and recover from a hazard event. The way vulnerability is used in the DRI means that it *also* includes anthropogenic variables that may increase the severity, frequency, extension and unpredictability of a hazard (UNDP 2004: 98).**
- **Assumption:"that differences in risk levels faced by countries with similar exposures to nat. hazards are explained by socio-economic factors, by populations vulnerability" with a focus on "socio-economical indicators reflecting human vulnerability to hazards." They used 38 variables: economic features, dependency on environment quality, demography, health & sanitation, politics, infrastructure, early warning & capacity of response, education & development, & discussed global risk & vulnerability patterns for 4 hazards: cyclones, droughts, earthquakes, & floods.**

5.8. Social Vulnerability in the Hazard and Development Research, and Policy Community

- **'Social vulnerability' is used in the hazard research comm. to distinguish social factors from manifold physical, economic, political and human aspects.**
- **DFID (2003) Social vulnerability is the complex set of characteristics that include a person's:**
- ***initial well-being*** **(nutritional status, physical and mental health, morale;**
- ***livelihood and resilience*** **(asset pattern & capitals, income & exchange options, qualifications);**
- ***self-protection*** **(degree of protection afforded by capability & willingness to build safe home, use safe site);**
- ***social protection*** **(forms of hazard preparedness provided by society more generally, building codes, mitigation measures, shelters, preparedness); and**
- ***social and political networks and institutions*** **(social capital, but also role of institutional environment in setting good conditions for hazard precautions, peoples' rights to express needs and of access to preparedness).**

5.9. No Consensus on Vulnerability Concept

- From review of scientific vulnerability concepts in global change, climate change, hazard, environment, development and early warning communities no consensus has emerged on a definition, on criteria and indicators for the measurement of vulnerability.
- For hazard community, vulnerability is combination of additional contributing factors causing a hazard due to natural variability or human inducement to a disaster. The selection and inclusion of these contributing factors is configured by the worldview, mind-set, perception, the theories and models of the analyst.
- Vulnerability is always socially constructed. In the end therefore 'vulnerability' is how the analyst or policy-maker has defined it and which of the many definitions have become accepted by a consensus within the respective research community.

6. Reconceptualising ‘Security Risks’: The Term

- ‘Risk’ (Lat.: ‘risicare’ navigate around cliffs; Fr.: ‘risque’; It.: ‘risico, risco’; Sp.: ‘riesgo’; Port.: ‘risco’; Ger.: ‘Risiko’): danger, peril, jeopardy, hazard; chance, gamble, possibility, speculation, uncertainty, venture; unpredictability, precariousness, instability, insecurity, perilousness, riskiness, probability, likelihood, threat, menace, fear, prospect.
- *Webster’s:* *risk* means “1. possibility of loss, injury, disadvantage, or destruction: contingency, danger, peril, threat …; 2. someone … that creates … a hazard or adverse chance: dangerous element or factor …; 3. chance of loss or perils to subject matter or insurance covered by contract; degree of probability of such loss; amount at risk; a person or thing judged as a specified hazard to an insurer; insurance hazard from a cause or source (war, disaster); 4. product that may be lost & probability of losing it.”
- *Longman* : “1. possibility of bad result … that something bad, unpleasant, or dangerous may happen …; 2. take a risk…; 3. at risk …; 4. run a risk…; 5. at risk of doing something...; 6. at your own risk…; 7. cause of dangers: …; 8. insurance & business: a person or business judged according danger involved in giving them insurance/lending them money”.
- *The Oxford Guide to the English Language*: “possibility of meeting danger or suffering harm; person or thing representing a source of risk.” Besides many meanings in cont. American & British English, ‘risk’ concept has been employed in many natural & social science disciplines as a scientific concept. It has also been widely used by policy-makers to justify specific policy goals and programmes.

6.1. Risk as a Political and Scientific Concept

- Risk: philosophy, pol. sc., sociology, psychology, economics, geosciences.
- *Brockhaus Enzyklopädie* (1992): ‘r. measures’, ‘r. assessment’, ‘r. factors’. ‘r. indicators’, ‘r. society’, ‘r. capital, ‘r. policy & management’ & ‘r. premiums’.
- *Brockhaus* meanings of risk”: 1. possibility that action or activity causes a damage or loss of material or persons; 2. risk when consequences are uncertain. *Pure* (airplane crash), *speculative* (stock market), *insured* and *technical risks*.
- Quantitative measurement of risks, simple risk indicators are used: Risk estimates involve a prospective estimate based on probability, frequency & intensity of damages that are based on specific ‘risk analyses’. ‘Risk assessment’ is used in daily practice in many disciplines & is influenced by personal risk acceptance. RA of nuclear technologies differs among groups & countries. ‘Risk factors’: social medicine, public health & epidemiology to point to factors increasing probability to get affected by a disease, risk indicators may be indirect contributing factors (e.g. social conditions for breakout of a disease).
- Beck’s ‘risk society’ initiated a global debate in social sciences that impacts on security risks. ‘Risk policy and politics’ as well as ‘risk management’ comprise all measures of an enterprise to improve its financial performance.

6.2. Risk as a Political and Scientific Concept in Scientific Dictionaries

- **'Risk' evolved since 15th century referring to financial danger associated with trade. It was primarily used on insurance in economic activities.**
- **The term is widely employed in the *probability theory* (Laplace, Bernoulli), in *economics* (A. Smith, Ricardo, J.S. Mills, Knight), in *existential philosophy* (Kierkegaard, Heidegger, Jaspers, Sartre, Camus) and in *decision-making theory* (Neumann/von Morgenstern 1944).**
- **Risk concept is used as a political term in nuclear technology for estimating how much security of technology is needed & how much insecurity is acceptable for society. Risk is equated with the expectation of security contributing to risk acceptance.**
- **Since the 1970s the concept has been intensively discussed in economics, psychology, sociology and in political science.**
- **In 1980s research from 'risk perception' to 'risk communication' incl. role of media & social amplification of risk. In analysing the failure of risk communication initiatives, research increasingly focused on lack of trust towards policy makers with regard to hazardous industrial plants/installations.**
- **In 1990s a new school doubted objective risks pointing to social construction of risk that influenced risk perceptions and risk-taking behaviour. Others criticised risk comparisons because they ignored the societal risk context.**

6.3. Debate on ‘Risk’ and ‘Risk Society’ in the Social Sciences

- **Giddens:** Reason for distrust: growing relevance of globalisation.
- **Beck (1986):** ‘Risk society’ influenced debate in social sciences. Risk is increasing with complexity of technology. Research on mental models gained in importance focusing on misperceptions of different kinds of risks.
- **Löfstedt & Frewer (2004):** argue on future of risk research that model of social amplification of risk should be developed & research on risk perception & communication, & on public responses to transboundary risks.
- **Bonss (1995):** development of ‘sociology of risk’ since late 1960s after Seveso, Harrisburg, Bhopal & Tschernobyl. He broadened sociological risk debates:
  - 1) linkage betw. risk & technology to be analysed as a problem of insecurity;
  - 2) from a historical perspective treatment of uncertainty should be re-constructed.
  - 3) A systematic history of discourse on risk as a social & cultural construct on transition from a reactive to active orientation of insecurity.
- **Bonss** pointed to two alternatives from an action or systems perspective:
  - From an action perspective, risks are reduced to risk decisions,
  - from a systems perspective risks are treated as threats or danger of loss.
  - He suggests to analyse risks in the context of social construction of uncertainties.
  - While uncertainties due to dangers exist irrespective of human actions, uncertainties as risks include intentions & implementation of action.
  - Risks are often the result of decisions made under uncertainty.

6.4. Debate on 'Risk' and 'Risk Society' in the Social Sciences (2)

- **Jaeger, Renn, Rosa & Webler (2001): risk, uncertainty & rational action.**
  - **Risk: analytical lens for anticipating consequences of purposive actions on environment & ourselves.**
  - **Nature of risks has changed, while they were originally local in impact, today many risks are ecocentric (linked to environmental problems or related to environmental conditions), and global.**
- **Common risks: systematic cumulative environmental risks, affecting the globe (climate change), & increasing risk consciousness of high technology.**
- **With adoption of 'risk' Western thought has shifted from "expectation of progress, of continued improvement in the social world" to an epoch, shifting from 'goods' of modernisation to unintended 'bads'.**
- **First rational action, as the dominant worldview**
  - **for understanding and managing risk;**
  - **reflexive modernization, critical theory, systems theory, postmodernism;**
  - **risk presupposes a distinction between *predetermination* & *possibility*;**
  - **is present only to the extent that uncertainty involves some feature of the world, stemming from natural events or human activities that impacts human reality;**
  - **exists only when humans have a *stake in outcomes*.**
  - **a situation or event in which something of human value has been put at stake and where the outcome is uncertain.**

6.5. Debate on Beck's 'Risk Society'

- **Ulrich Beck (1999) defined 'risk' as:**
  - to foresee & control future consequences of human action, unintended consequences of radicalised modernization.
  - institutionalised attempt, a cognitive map, to colonise the future;
  - risk regime is a function of a new order: it is not national, but global;
  - risks presuppose decisions previously undertaken with fixed norms of calculability, connecting means and ends;
  - norms are what 'world risk society' has rendered invalid;
  - risk and risk society combines what once was mutually exclusive – society and nature, social sciences and material sciences, the discursive construction of risk and the materiality of threats.
- **Predictable *risks* & unpredictable *threats* & offered a typology of three types of global threats:**
  - **1) *wealth-driven* ecological destruction & technological-industrial dangers (ozone hole, global warming) & unpredictable risk of genetic engineering;**
  - **2) risks related to *poverty* & environmental destruction;**
  - **3) *weapons of mass destr*uction**
- **Global threats led to a world where established risk-logic has whittled away, & where hard to manage dangers prevail over quantifiable risks.**
- **New dangers are removing conventional pillars of safety calculation.**
- **Damage loses its spatio-temporal limits and becomes global and lasting.**
- **It is hardly possible any more to blame definite individuals for such damage.**
- **Financial compensation cannot award for damage done;**
- **No insurance against the worst-case effects of spiralling global threats.**

6.6. Global and Regional Environmental Risk as a Scientific Concept

- Kasperson & Kasperson (2001) distinguish *systemic* risks & *cumulative environmental change* with short- and long-term consequences.
  - global environmental risk is about threat; it is also about opportunity.
  - take stock of distinctive *challenges* posed by global environmental *risks*,
  - ability of knowledge system to identify & characterise such *threats*,
  - capability of societies to address vulnerability and the management of *challenges*.
- *Global environmental risk* refers to threats … resulting from human-induced environ-mental change, either systemic or cumulative, on the global scale.
- They focus on five themes:
  - 1) Global environment *risk* is the ultimate *threat*.
  - 2) *Uncertainty* is persistent feature for understanding process, causation & predicting outcomes.
  - 3) Global environment risk manifests in different ways at spatial scale.
  - 4) *Vulnerability* is a function of variability & distribution in physical & socio-economic systems; limited human ability to cope with accumulating hazard, & socio-econ. constraints
  - 5) Futures are not given, they must be negotiated.
- Global environm. risks threaten international security & peaceful relations among states, contributing to differentiation of wealth and increasing competition, tensions & conflict.

6.7. Risk as a Scientific Concept in the Hazard Research Community

- Natural, human-induced natural, man-made hazards, technical calamities focusing on risk perception, analysis, assessment' & management.
- Blaikie, Cannon, Davis and Wisner (2000): comprehensive theoretical framework on challenges of disasters, disaster pressure & release models, access to resources & coping in adversity & an empirical analysis of famine & natural hazards, biological hazards, floods, coastal storms, earthquakes, volcanoes & landslides & action for disaster reduction.
- Smith (2001) defined risks as:

  risk = hazard (probability) x loss (expected) : preparedness (loss mitigation).
- Tobin & Montz (1997) defined risks as a part of hazard.

  Risk = probability of occurrence x vulnerability.

  Hazard = f (risk x exposure x vulnerability x response)
- Bogardi/Birkmann/Carbonna model (2005) > talk by J. Birkmann

6.8. Risk as a Practical Concept in the Hazard Research Community

- UN-ISDR (2002) defined 'risk' as:

  The probability of harmful consequences, or expected loss (of lives, people injured, property, livelihoods, economic activity disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable/capable conditions. Risk is expressed by the equation: Risk = Hazards x Vulnerability/Capacity.

- ISDR (2004) offers a slightly different definition of 'risk':

  Conventionally risk is expressed by the notation: Risk = Hazards x Vulnerability. Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability. Beyond expressing a possibility of physical harm, it is crucial to recognise that risks are inherent or can be created or exist within social systems. It is important to consider the social contexts in which risks occur and that people therefore do not necessarily share the same perceptions of risk and their underlying causes.

6.9. From Yokohama (1995) to Kobe (2005): Disaster Prevention, Preparedness & Mitigation

- **Yokohama Strategy for a Safer World**: ***Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action*** **(1994)**
  - ***Review of Yokohama Strategy:*** **five accomplishments & challenges: governance, risk identification, knowledge management, reducing underlying risk factors & preparedness for effective response and recovery.**

➢ ***World Conf. on Disaster Reduction*** **in Kobe:** ***Hyogo Framework for Action 2005-2015:*** **strategic & systematic approach to reduce vulnerabilities & risks to hazards by "building the resilience of nations/communities to disasters":**

Disaster risk arises when hazards interact with physical, social, economic & environmental vulnerabilities. … Despite the growing understanding and acceptance of the importance of disaster risk reduction and increased disaster response capacities, disasters and in particular the management and reduction of risk continue to pose a global challenge.

- **The** ***Hyogo Framework for Action 2005-2015:*** **enhanced international cooperation & assistance in disaster risk reduction, incl. knowledge transfer, sharing of research results, enhance governance, financial assistance to reduce existing risks & setting-up of governance systems to avoid the generation of new risk."**

6.10. World Conference on Disaster Reduction in Kobe - Hyogo Framework for Action 2005-2015

- **To identify, assess and monitor disaster risk and enhance early warning, the Kobe strategy listed among the key activities:**
  - **i) *National and local risk assessments* (risk maps, indicators of disaster risk and vulnerability);**
  - **ii) *early warning* (people-centred, information systems, institutional capacities, better cooperation);**
  - **iii) *capacity* (support for infrastructures, databases, support for methods and capacities); and**
  - **iv) *regional and emerging risks* (cooperation, early warning, research on long-term changes: climate trends, diseases, land-use, environmental hotspots, slope deforestation, demographic changes and density, rapid urbanization, re-levant trade factors).**
- **For reducing underlying risk factors, the document has referred to:**
  - **i) *environmental and natural resource management*;**
  - **ii) *social and economic development practices*;**
  - **iii) *land-use planning and other technical measures*.**

6.11. EU Communities: "Strategic Objectives 2005-2009 – Europe 2010: (26 January 2005)

- **EU Commission "Strategic Objectives 2005-2009 – Europe 2010: A Partnership for European Renewal: Prosperity, Solidarity & Security":**
  - security of the citizen "can be put at risk by natural disasters, environmental or health crises & transport & energy threats."
  - EU role in risk prevention, early warning, crisis management, acting for victims of disasters.
  - "managing risk in the modern world."
  - Environmental and health risks such as increased threats of floods or droughts following climate change, fallout from potential biological, chemical or radiological attacks of serious outbreaks of disease …. They must be tackled: by ability to offer early warning & immediate response to a particular crisis, & by long-term prevention. Information & surveillance networks need to be effective if they are to cope adequately with cross-border threats.
- **Strategic objectives of EU Commission:**
  - 1) stronger actor in world economy;
  - 2) global solidarity;
  - 3) making security work worldwide to enable Europe "to tackle stability & security issues at their root by strongly promoting sustainable development through multilateral & bilateral channels".
- **Focus from narrow military threats to:**
  - a) non-military security challenges: org. crime, terrorism, human/drug trafficking;
  - b) natural disasters, environmental and health risks;
  - c) energy supply crises & vulnerability of traffic & energy infrastructure;
  - d) promoting global solidarity with sustainable development.

7. Environmental Security Threats, Challenges, Vulnerabilities and Risks

- **Key questions (Baldwin 1997; Møller 2003; Hintermeier 2006) modified**
- **Does environment (subject) pose security threats, challenges, vulnerabilities & risks or is it (object) affected by other security threats, challenges, vulnerabilities & risks?**
  - **For whom? (referents of securitisation activity)**
  - **Which & whose values are threatened, challenged, vulnerable & or put at risk by the environment?**
  - **How much is environment threatened, challenged, vulnerable & put at risk?**
  - **By what means, at what cost and in what time is environment threatened, challenged, vulnerable and at risk?**
  - **What and who might threaten, challenge, make vulnerable and put at risk environment?**
  - **Whose fears should count?**
  - **Security by what means and strategies?**

7.1 Environmental Security Dangers: Cause and Victim of Securitisation

- Security is achieved if there is an absence of objective threats and subjective fears to basic values.
- Ecosystem was introduced as reference object of '*environmental security*'. Its values at risk are sustainability & the sources of dangers are humankind & global environmental change .
- Environment is considered as cause & object of threats, challenges, vulnerabilities and risks posed by GEC, environmental pollution & natural hazards.
- While most securitisation efforts have focused on the 'state' or on the 'society' as major referent objects, Westing (1989) introduced the environment into a '**comprehensive human security**' concept that requires both *protection* (quality of environment) and *utilisation* requirement (human welfare).
- Renewable natural resources must be used in sustainable way.

7.2. Janus Quality of Environmental Security: Cause or Object of Security Threats, Challenges, Vulnerabilities and Risks

- 1st stage of environmental security research:
  - Westing: security impact of use herbicides on environm. in Vietnam
  - Ullman, Myers, Matthews: GEC as national security threats for US
- 2nd stage: Empirical phase (Homer-Dixon, Bächler groups)
  - Toronto group: population growth, environmental scarcity as cause of env. Stress posing security dangers (threats, chall., vuln., risks)
  - ENCOP: env. Scarcity and degradation posing security dangers
- 3rd stage: Diversified and lack of consensus
  - Collier/Handler: resource abundance as a security danger
- Goals for 4th stage: need for reconceptualisation
  - Dalby 2002; Brauch 2003; Brauch/Dalby/Oswald 2007.

7.3. Compilation of Environmental 'Threats', 'Challenges', 'Vulnerabilities' and 'Risks'

Environmental causes, stressors, effects and natural hazards pose	Natural and economic factors		Societal impact factors (exposure)	
	Substantial threats for	Challenges affecting	Vulnerabilities for	Risks for
	Security objects (for what or whom?)			
Climate change - temperature increase (creeping, long-term)	- Human health - agriculture (yield decline) - biodiversity - desertification	- tourism - food security - fisheries - government action - economic action	- infectious disease - damage to crops - natural systems - water scarcity - forest fire	- human populations - the poor, old people and children due to heat waves
Climate change - sea level rise (creeping, long-term)	- Small island states - marine eco-system, - indigenous communities, - industry, energy	- deltas - coastal zones - marine, freshwater ecosystems	- coastal cities, habitats, infrastructure, jobs - cities, homes, jobs	- livelihood - poor people, - insurance, - financial services

7.4. Vulnerability of Key Sectors to Climate Change in Asia (IPCC 2001: 580)

Regions	Food & fiber	Biodi-versity	Water resources	Coastal ecosystems	Human health	Settle-ments
Boreal	+ ***	***	+ ***	+ **	**	***
Central	****	**	***	**	***	***
Tibet	**	***	**	not applicable	no information	
Temperate	****	***	****	****	***	****
South Asia	****	***	****	****	***	***
South East	****	***	****	****	***	***

**** highly, *** and ** moderately vulnerable , + slightly resilient

7.5. Potential Land Loss and Population Exposed in Asia. (IPCC 2001a: 569)

Country	SLR (cm)	Potential land loss		Population exposed	
		km^2	%	million	%
Bangladesh	45	15,668	10.9	5.5	5.0
Bangladesh	100	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

7.6. 'Human Security' Policies and Measures for Coping with Environmental Threats, Challenges, Vulnerabilities & Risks for 'Ecosystems' and 'Sustainability'

Strategies & means for coping with	Threats of	Challenges for	Vulnerabilities of	Risks of
	Environmental Security for			
Sustainable development policy goals	- Air (climate), soil, water	- agriculture and food security	- vulnerable people (old, children, women, indigenous groups)	
Environment policy (implementation of environmental treaties, regimes)	- Climate change, - soil erosion, - water scarcity and degradation	- economy - agriculture - tourism - health	- rural livelihood - urban habitat - transport & econ. infrastructure	- reducing exposure of people with low resilience
Early recognition (research, education, training, agenda-setting)	- Extreme weather events (storm, flood, drought)	- agriculture (shift in crops)	- city planning - building standards	- enhancing knowledge of these people
Early warning of hazards & disasters	- Hydro-meteorological (storms, floods, drought) and geophysical (earthquake, volcano, tsunami) hazards	- agriculture (specific crops) - public health	- vulnerability mapping of hazard prone areas &housing	- enhancing training of these people
Effective disaster preparedness & rapid disaster response		- (inter)national organisations and resources	- vulnerability mapping of hazard prone areas and housing	- enhancing protection of these people

8. Human Security Threats, Challenges, Vulnerabilities & Risks

- **Three human security concepts:**
  - Freedom from want (UNDP, HSC: Ogata/Sen: Human Security Now, 2003)
  - Freedom from fear (Human Security Network, since 1999)
  - Freedom from hazard impact (Bogardi/Brauch: UNU-EHS proposed)
- **Global scientific and political debate on human security:**
  - UNESCO: Africa, Latin America, Arab world, South & Southeast Asia
  - Reviewed & assessed in volume 4 in Hexagon Series
- **Towards Human-centred Environmental Security Concept**
  - IHDP Programme GECHS (1999), Barnett (2001),
  - UNU-EHS: Bogardi/Brauch (2005), Brauch 2005

8.1. UNU-EHS: 'Freedom from Hazard Impact'

- ***United Nations University Institute on Environment and Human Security*** **(UNU-EHS) in Bonn (2003): develop environmental dimension of human security. Improvement of HS requires better understanding of vulnerability in societies & of environm. conditions for natural hazards & of creeping environmental degradation that impact on vulnerability & hazard components.**
- **Conceptual & policy task for UNU-EHS (2004): develop third component of HS concept, & contribute to implementation:**
  - **capacity-building for early warning,**
  - **vulnerability indicators & mapping.**
  - **Impact of tragic events: early warning & disaster preparedness.**
  - **'Freedom from hazard impact': mobilise resources for sustainable development rather than vicious cycle of the survival dilemma.**

8.2. UNU-EHS: Hazard Specific Measures

- **Hazard-specific policies & technical, organisat. & political measures:**
  - **Slow-onset hazards: sea-level rise & temperature increase due to clim. change:**
    - **a) long-term strategies for reducing greenhouse gas emissions,**
    - **b) measures of adaptation (dams),**
    - **c) mitigation (restriction of housing in coastal areas);**
  - **Rapid-onset hydro-meteorological hazards: CC & extreme weather events:**
    - **disaster preparedness (education, training, infrastructure);**
    - **disaster response on national & international level.**
    - **early warning systems for storms, floods (vulnerability mapping), forest fires (monitoring from space and plains), droughts (precipitation monitoring);**
  - **Rapid-onset geophysical hazards: earthquakes, tsunamis, volcanic eruptions & possible extreme consequences require improved early warning systems**
  - **Human induced disasters:**
    - **technical (malfunctioning of technical systems, collapse of buil-dings, dams), industrial (e.g. chemical industry, nuclear reactors) & traffic accidents (road, railway, ships, airplanes etc.)**
    - **intentional malicious acts by states in war (attacking objects containing dangerous forces, dams, energy and chemical plants) and by non-state societal (terrorists) and economic (organised crime) actors or a combination of these.**

8.3. Human Security Threats, Challenges, Vulnerability and Risks

- From a HS perspective many threats, challenges, vulnerabilities & risks exist for the major referent: individual human being or humankind in contrast to the state in prevailing national security concepts.
- From a HS perspective all five security dimensions & sectoral security concepts may be analysed.
- HS is infringed by underdevelopment ('want'), conflicts & human rights violations ('fear') & by hazards and disasters.
- 3 pillars of HS concept pose threats, challenges, vulnerabilities & risks to different aspects of human security & call for three different but interrelated strategies for coping & overcoming human insecurity for which different national & international organisations & means are needed.

8.4. Compilation of Human Security Threats, Challenges, Vulnerabilities, Risks

Dangers for Human Security Posed by	Human Security			
	Threats to	**Challenges for**	**Vulnerabilities to**	**Risks for**
Underdevelopment (‘freedom of want’)	- Human well-be-ing, - human health - life expectancy	- social safety nets - human development - food security	- economic crisis and shocks - communicable diseases	those most vulnerable (socially, economically) and exposed to underdevelopment, violence and hazards: - peasants, - poor - women, - children, - old people - indigenous - minorities.
Conflicts and human rights violations (‘freedom from fear’)	- Human life and personal safety (from wars) - identity, values	- feeling secure in a community - human rights - democracy	- war lords, criminals - corrupt regime, ruler - human rights abuses, violations	
Hazards and disasters (‘freedom from hazard impact’)	- Livelihood - survival - settlements, urban slums	- sustainable development - food security	- exposed population - livelihoods, habitat - disease (cholera, dengue, malaria, etc.)	

9. Security Threats, Challenges, Vulnerabilities and Risks in US National Security Documents (1990-2010)

- **Chapter contrasts different Worldviews and Mindsets**
- **Chapter introduces legal basis & political objective of these documents that address domestic audience to ‘assure’ the people and to ‘guide’ the national security establishment but also to international audience both to ‘reassure’ its allies and to ‘warn’ and to ‘deter’ its opponents (12.3.).**
- **It assesses as how the four key concepts of security threats, challenges, vulnerabilities and risks for the**
  - **US National Security Strategy (12.4),**
  - **Quadrennial Defence Review (12.5),**
  - **Nuclear Posture Reviews (12.6.)**
  - **other key military and defence documents (12.7.).**

9.1. Key Postulates of Neo-Kantian and Neo-Hobbesian world views on US role in global security

Table 12.1: Key Postulates of Neo-Kantian and Neo-Hobbesian worldviews on the US role in global security. **Source:** Binnendijk and Kugler (2006: 11). Permission for reproduction was granted by the authors.

	Neo-Kantian[a)]	Neo-Hobbesian[b)]
Modern world affairs are driven mainly by:	Democratization and economic growth	Stressful security affairs
The primary instrument is:	Democratic institutions and economic instruments	Military power
The geographic focus is on:	Europe, Asia, Latin America	Greater Middle East
The main goals of foreign policy should be:	Democracy and economic growth	Stable security affairs
The future is:	Optimistic	Pessimistic
Treaties, alliances, and inter-national institutions merit:	Strong support	Less faith
Interdependence creates	Opportunities for cooperation	Vulnerabilities
Best chance of success in world affairs comes from:	Liberal democracies working together multilaterally	United States often acting unilaterally as a Leviathan

9.2 Premises of philosophies on national security strategy. Binnendijk/Kugler (2006)

Table 12.2: Premises of philosophies on U.S. national security strategy. **Source:** Binnendijk and Kugler (2006: 164). Permission for reproduction was granted by the authors.

	Traditional Conservatives	Progressive Multilaterialism	Assertive Interventionism	Offshore Balancers
Kant vs. Hobbes	Mostly Hobbes	Mostly Kant, some Hobbes	Mostly Hobbes, some Kant	Mostly Hobbes, some Kant
Nature of major threat	Unstable big power relations	Chaotic southern arc, terrorism	Chaotic southern arc, terrorism	American Overstretch
Role of alliances	Important	Very Important	Less Important	Very Important
Instruments of power	Hard military power and diplomacy	Soft power and diplomacy	Hard military and economic power	Soft power and diplomacy
Mechanisms of success	Power balancing and major-power equilibrium	Persuasion and coalition building	Suppression of threats and promotion of democratization	Balancing and using regional powers
US leadership style	Architect of big power concert	Consensual leader of multilateral alliances	Path-setting leader of ad hoc coalitions	Less engagement
Attention to Limits of US Power	Moderate emphasis	Major emphasis	Little emphasis	Strongest emphasis
Also called	Realists	Liberals, idealists	Neoconservatives	Neoisolationists

9.3. Overview of major US strategic documents (1989-2010). Source: Author.

Table 12.3: Overview of major US strategic documents (1989-2010). **Source:** The author.

Administration	US Quadrennial Defense Reviews (DoD)	US National Security Strategy (President)	US Nuclear Posture Review (DoD)	National Military/ Defense Strategy (JCS, DoD)
George Bush (1989-1993)		NSS (1991)		*Draft Defense Planning Guidance* (1992)
William J. Clinton (1993-1997)		NSS (1994) NSS (1996)	NPR (1994)	*National Military Strategy* (1995)
William J. Clinton (1997-2001)	1997 (William C. Cohen)	NSS (1997) NSS (1998) NSS (2000)		*National Military Strategy* (1997)
George W. Bush (2001-2005)	30 September 2001 (Donald Rumsfeld)	NSS (2002)		*National Military Strategy* (2004)
George W. Bush (2001-2005)	February 2006 (Donald Rumsfeld)	NSS (2006)	NPR (2001)	*National Defense Strategy* (2005) *National Defense Strategy* (2008)
Barack H. Obama (2009-	1 February 2010 (Robert Gates)	NSS (2010)	NPR (April 2010)	*Quadrennial Homeland Security Review Report* (2010)

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

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

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Freie Universität Berlin

AFES-PRESS

10.1. 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?

10.2 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)

10.3. National Communications on Climate Change of ASEAN countries

Countries	First (1-4)	UN-SG R.	IPCC,2001	IPCC,2007
Brunei	None			
Cambodia	8.10.2002			
Indonesia	27.10.1999	CCIS, 2009		
Laos	2.11.2000			
Malaysia	22.8.2000			
Myanmar	None			
Philippine	19.5.2000			
Singapor	21.8.2000			
Thailand	13.11.2000			
Vietnam	3.12.2003			

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**

10.4. 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**

10.8. 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 & International Conflict Avoidance, Prevention**

10.6. 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

Adelphi: Knowledge needs:

. **More research, interconnectedness of crises, risk management method**

10.7. 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

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

TAR (2001) Temperature Change (℃), p. 546

2020s			2050s			2080s		
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

The values are below the avera-ges for Asia & South Asia

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

2020s			2050s			2080s		
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

The values are below the avera-ges for Asia & South Asia

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

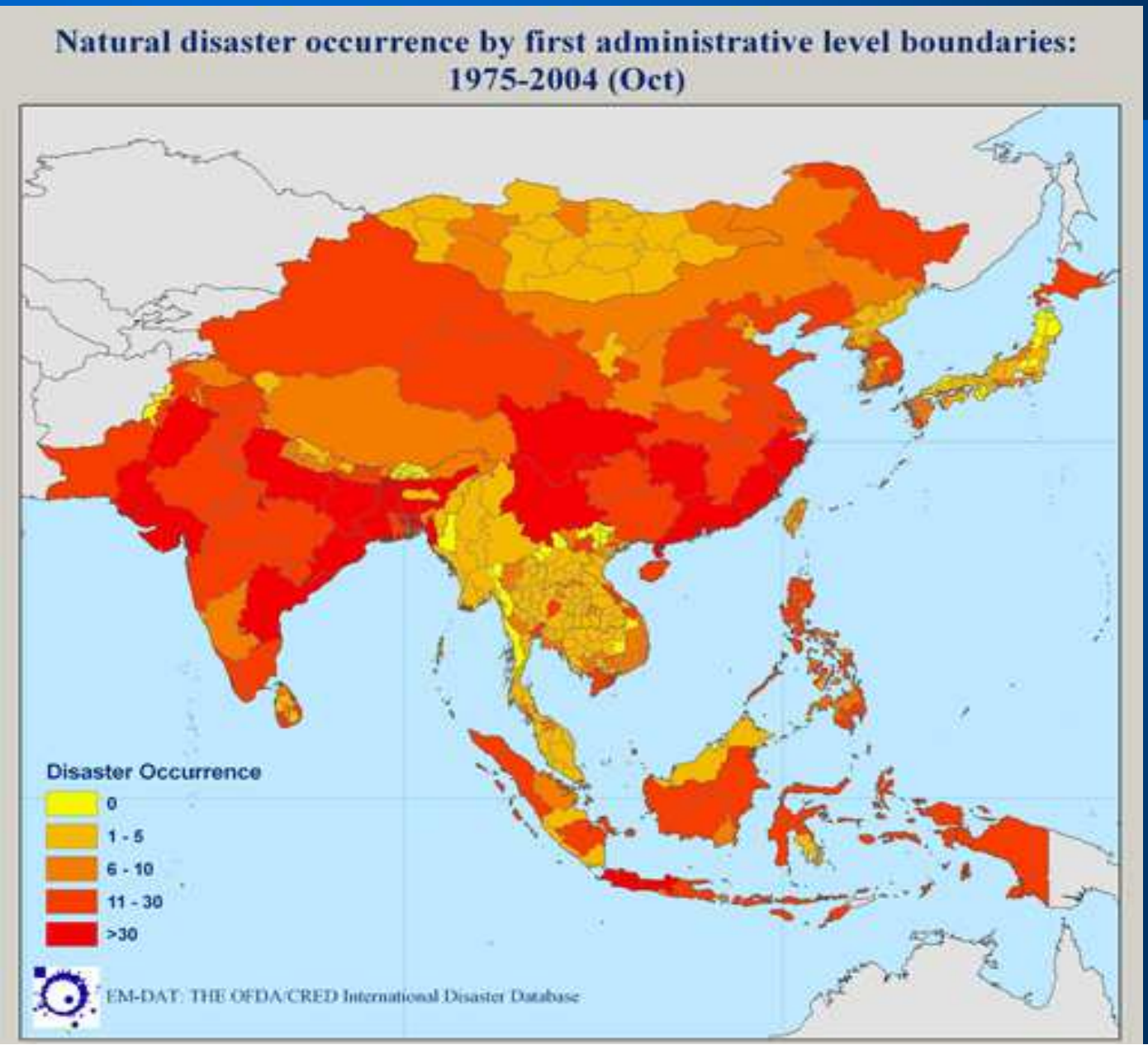
2010-2039				2040-2069				2070-2099			
Temperature		Precipitation		Temperature		Precipitation		Temperature		Precipitation	
A1FI	B1	A1FI	B1	A1FI	B1	A1FI	B1	A1FI	B1	A1FI	B1
0,86	0,72	-1	1	2,25	1,32	2	4	3,92	2,02	6	4

10.9. 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

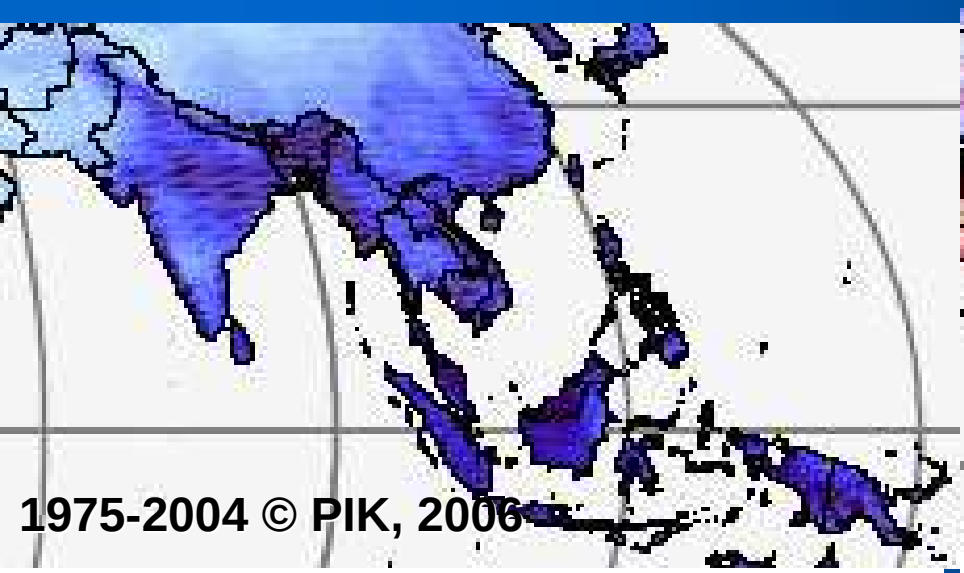
Vietnam is the most vulnerable country to climate change due to sea-level rise in South East Asia. In South-East Asia food & fibre, biodiversity, coastal ecosystems, human health and land degradation are highly vulnerable to climate change while water resources and human settlements are moderately vulnerable.

10.10. Natural Disasters in Asia (EMDAT)

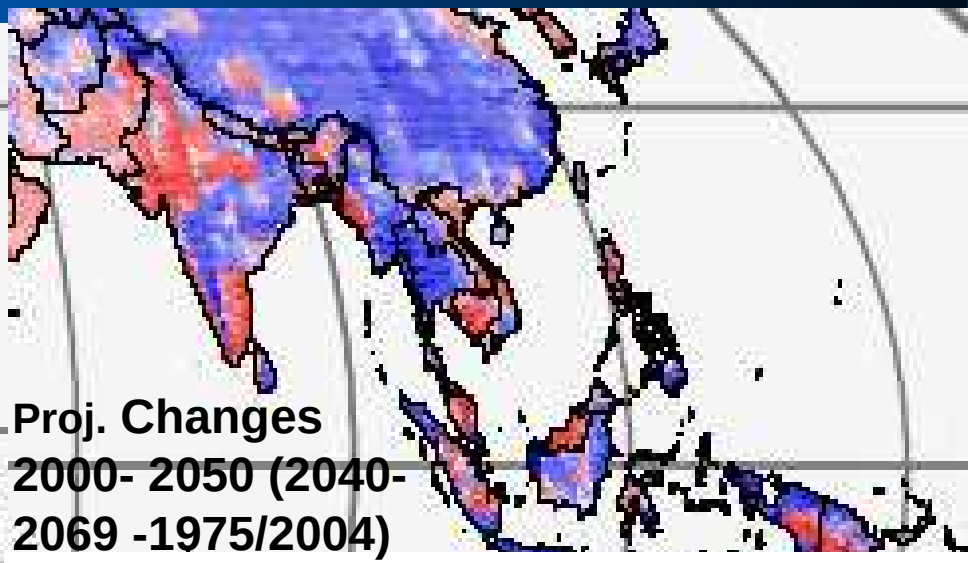


- SE Asia is not as highly affec-ted by disasters than South & East Asia.
- But the ASEAN countries have been affected by many severe storms, floods but also by droughts & by a projected decline in crop

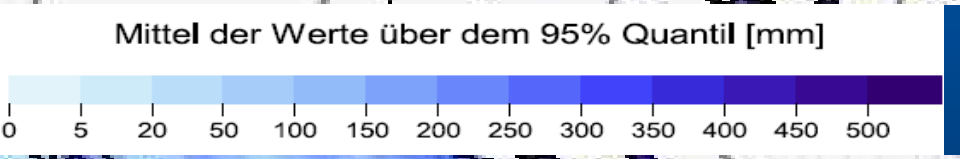
10.11. Potential Dangers by Flash Floods in South and Southeast Asia. Source: ©PIK 2006

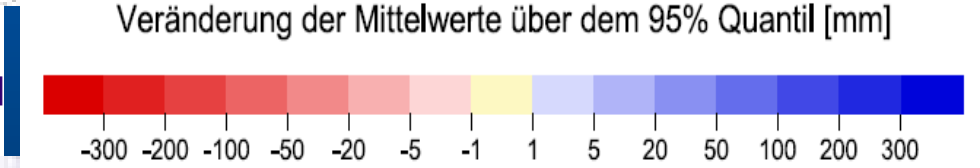


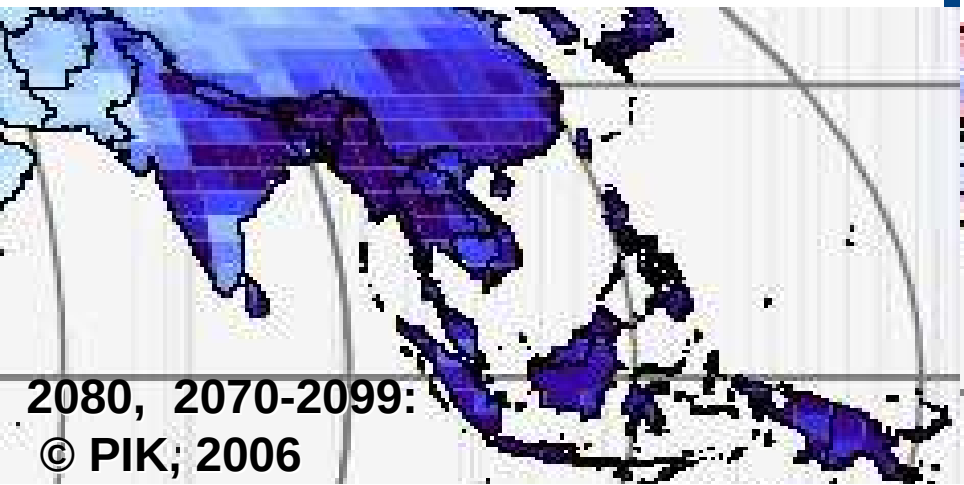
1975-2004 © PIK, 2006



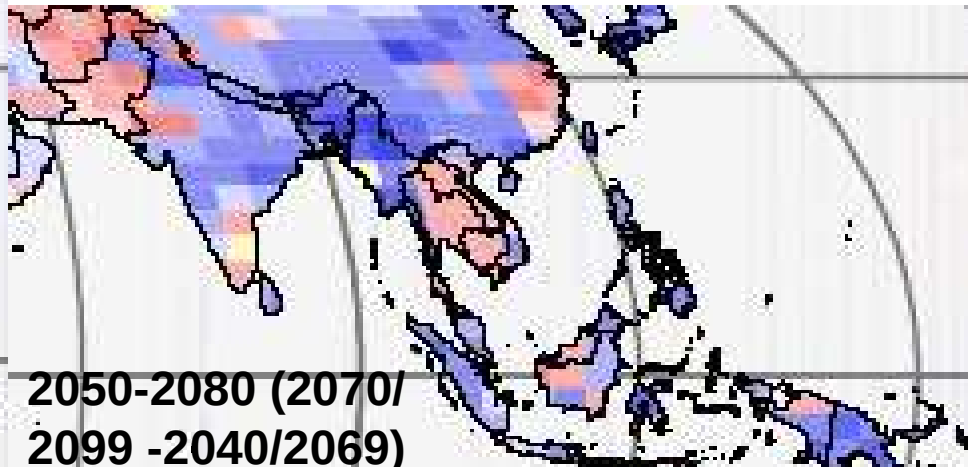
Proj. Changes 2000- 2050 (2040-2069 -1975/2004)





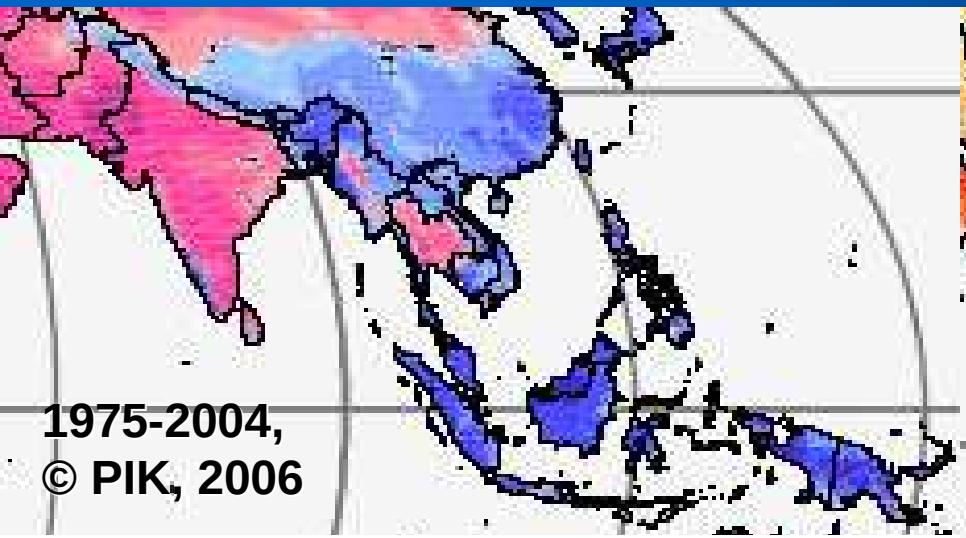


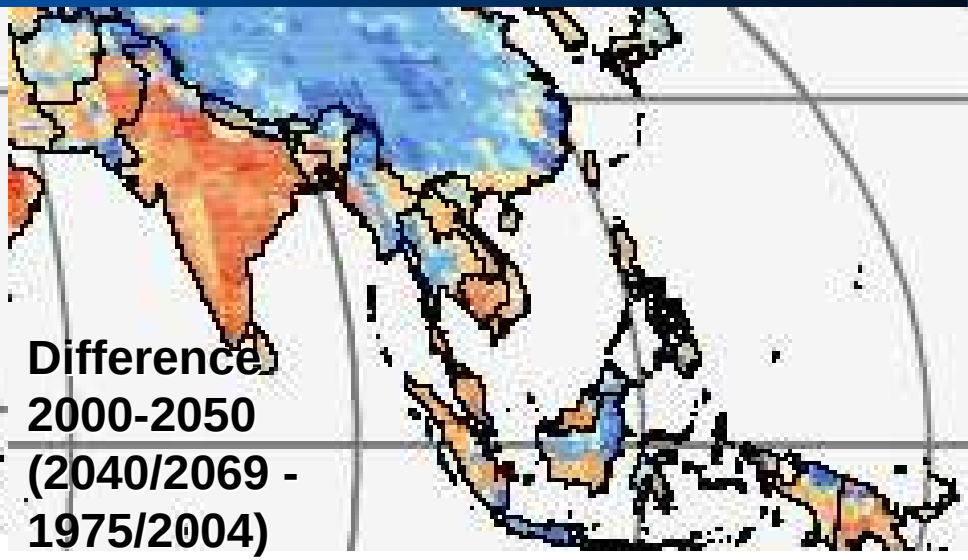
2080, 2070-2099: © PIK, 2006



2050-2080 (2070/2099 -2040/2069)

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



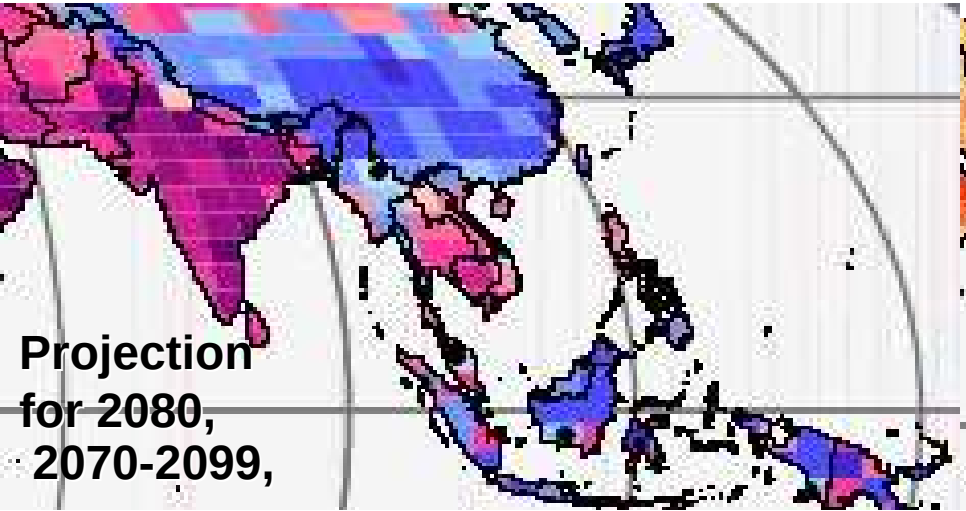


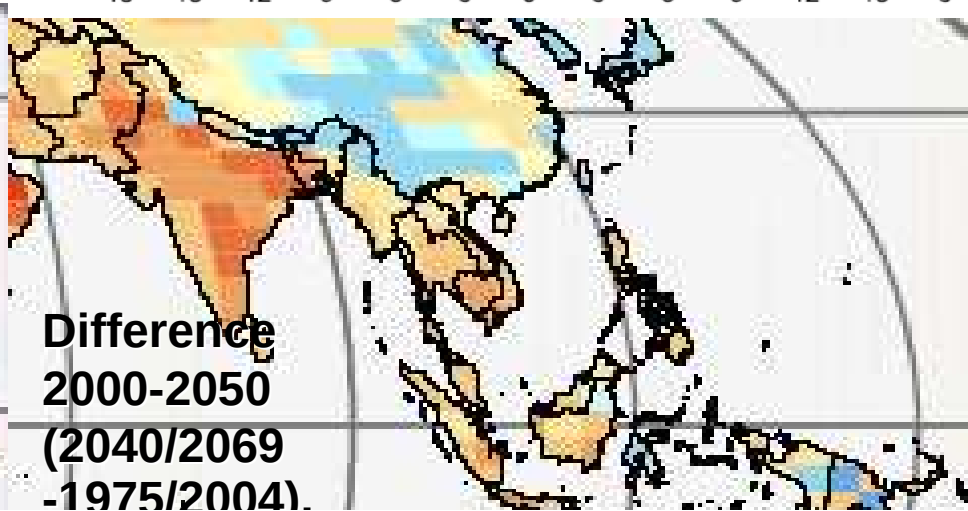
Klimatische Wasserbilanz [mm]

-18 -15 -12 -9 -6 -3 0 3 6 9 12 15 ^ 3

Veränderung der Klimatischen Wasserbilanz [mm]

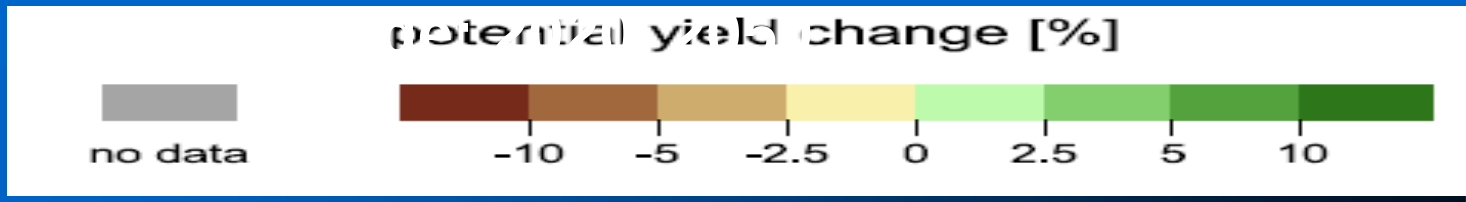
-18 -15 -12 -9 -6 -3 0 3 6 9 12 15 ^ 3

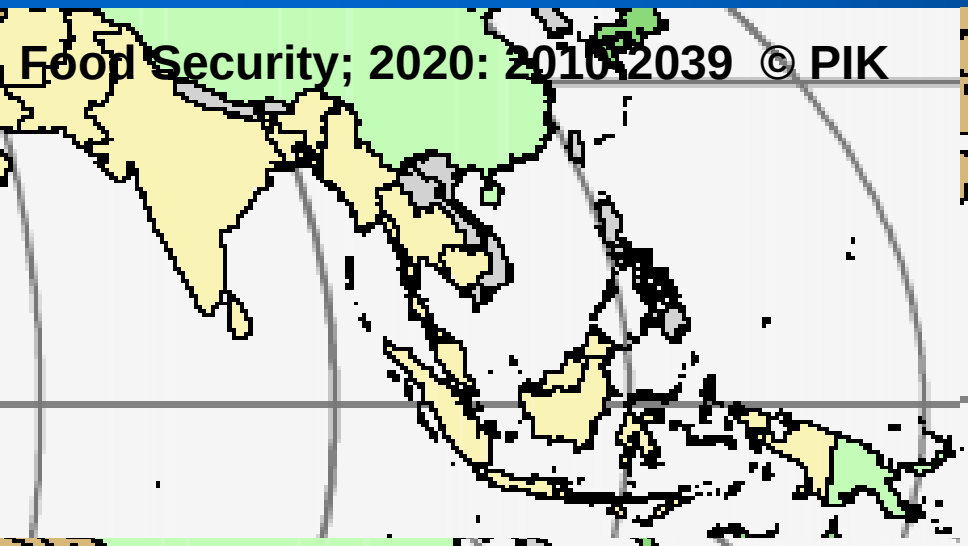


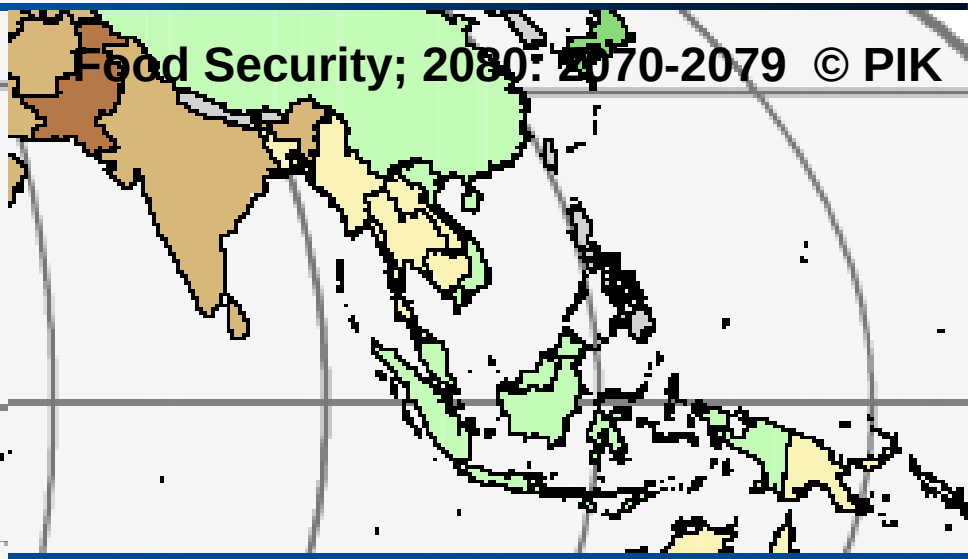


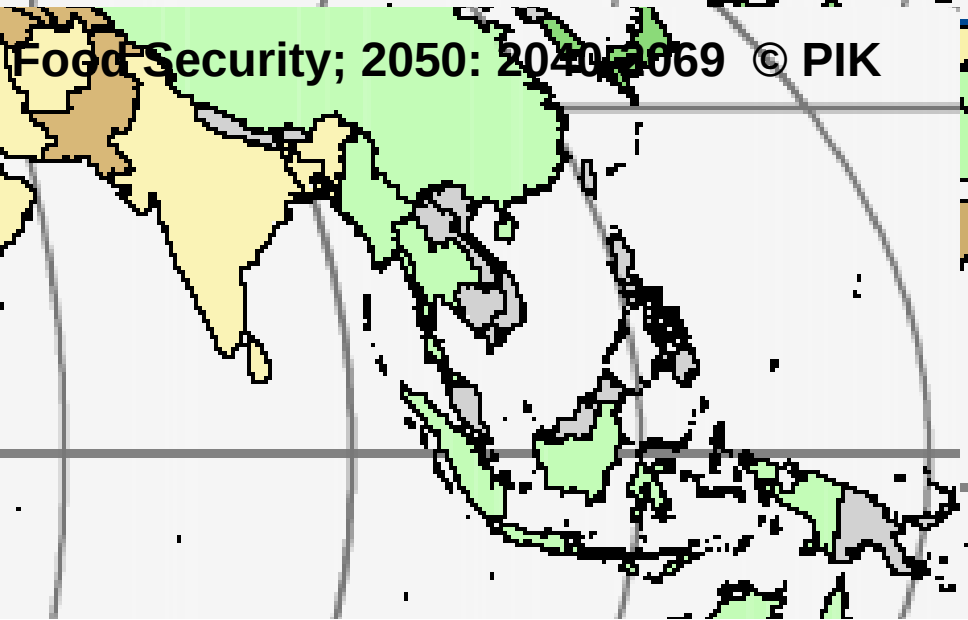
10.13 Projections of Change in Crop Yield with Climate

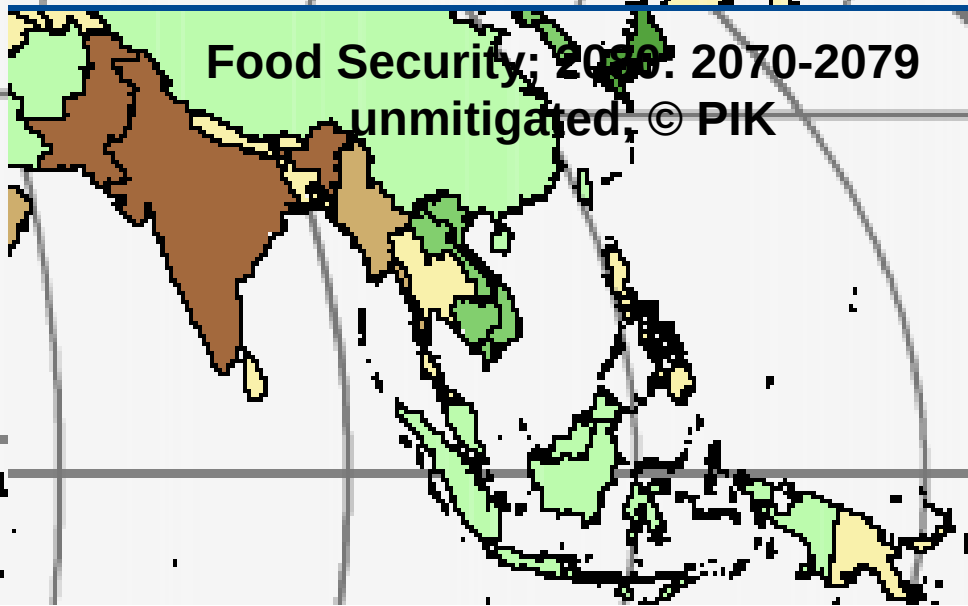
© PIK
2080, unmitig.





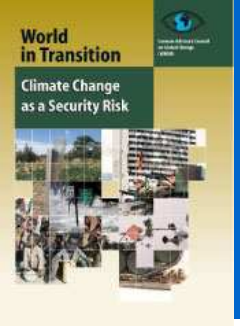






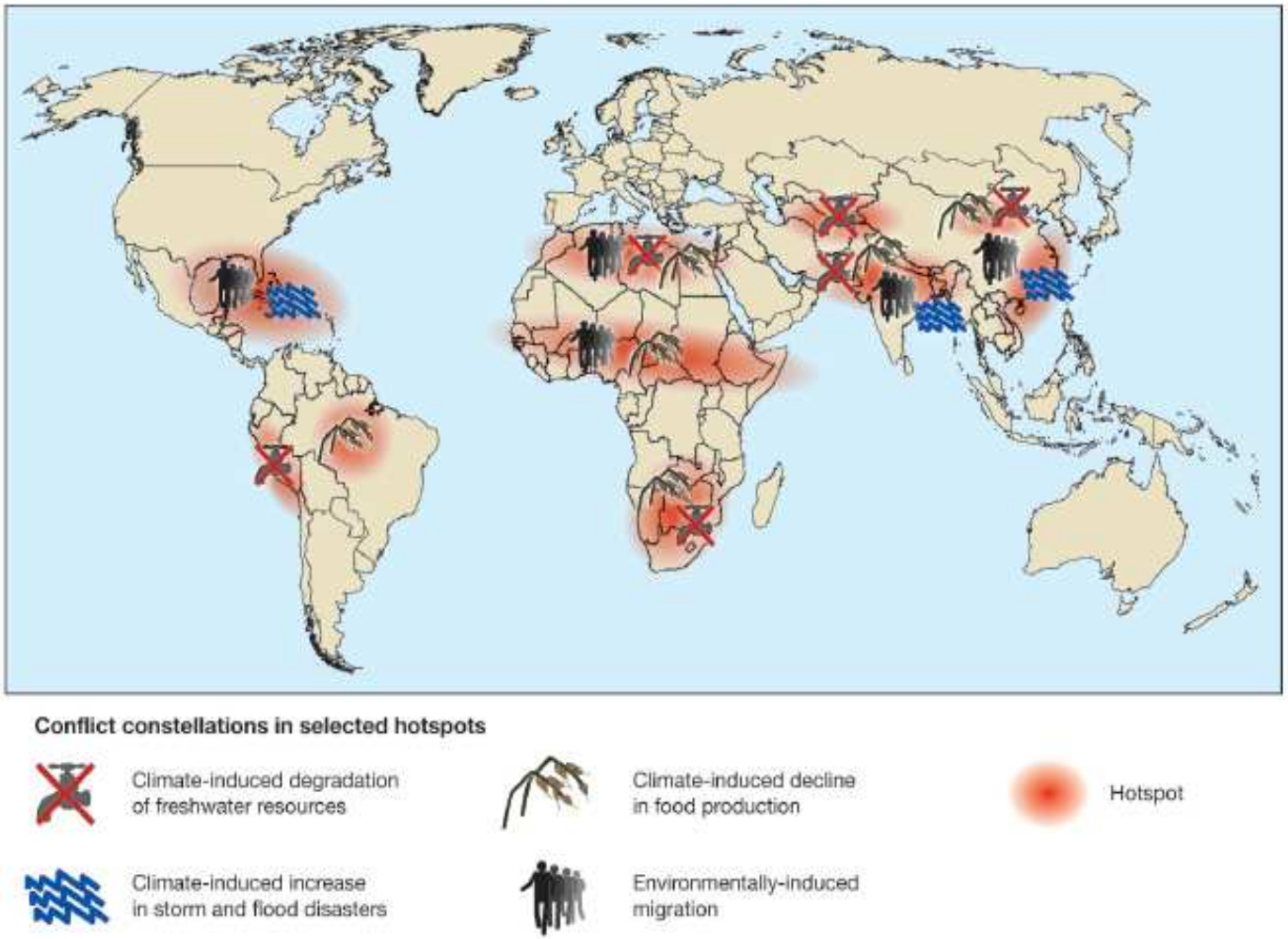
10.14. Potential Future Societal Impacts

- 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 (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)



10.4. WBGU-Study: Climate Hotspots: 4 Conflict Scenarios

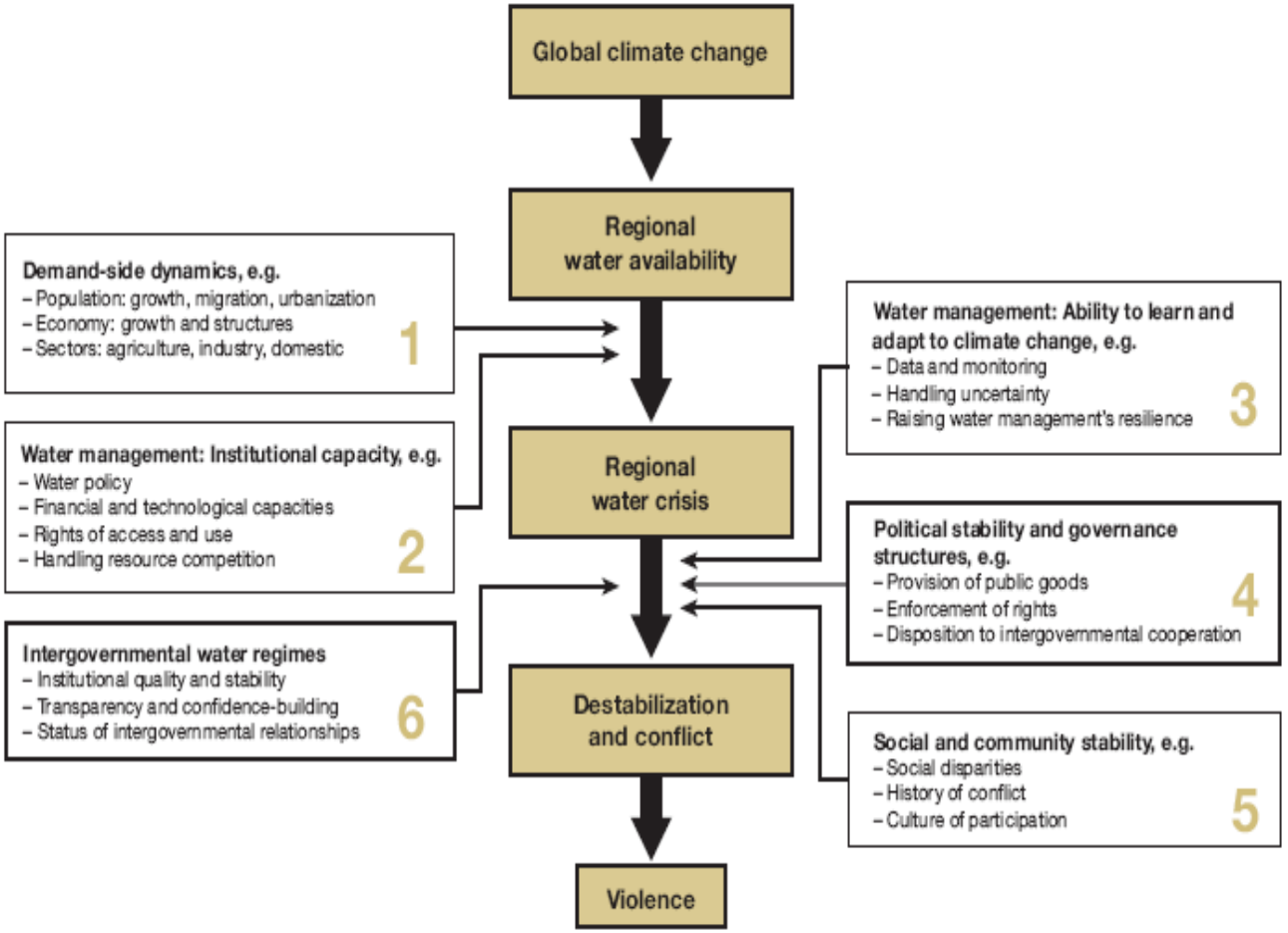
Figure 4.7: Regional hotspots and security risks associated with climate change. **Source**: WBGU (2008: 4). Reprinted with permission.



4 conflict con-stellations

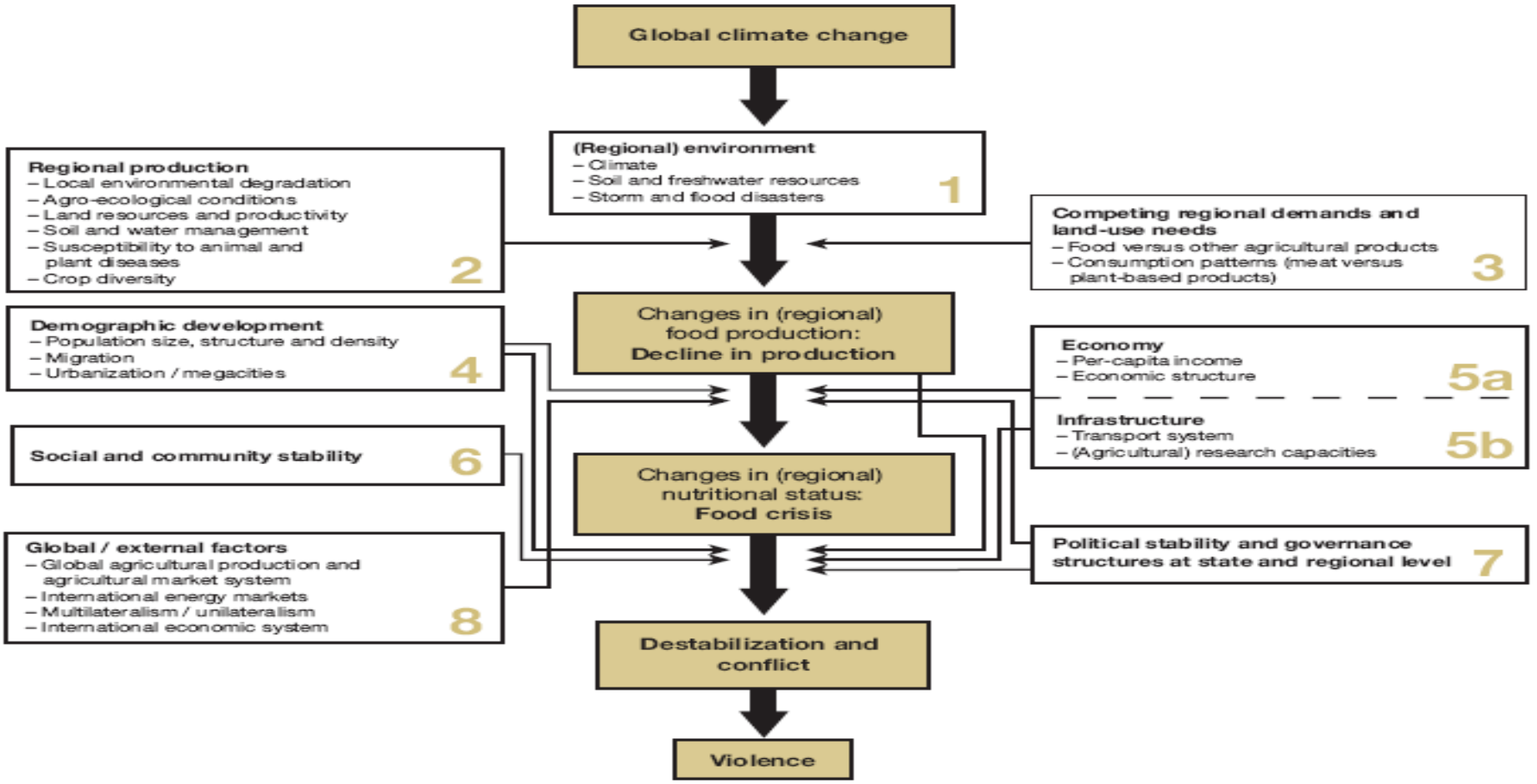
1. **Climate-induced freshwater resources**
2. **Climate-induced decline in food production**
3. Climate-induced increase in storm & flood disasters
4. **Environmentally-& climate induced migration**

10.15. Conflict Constellation Climate-induced Degradation of Freshwater Resources

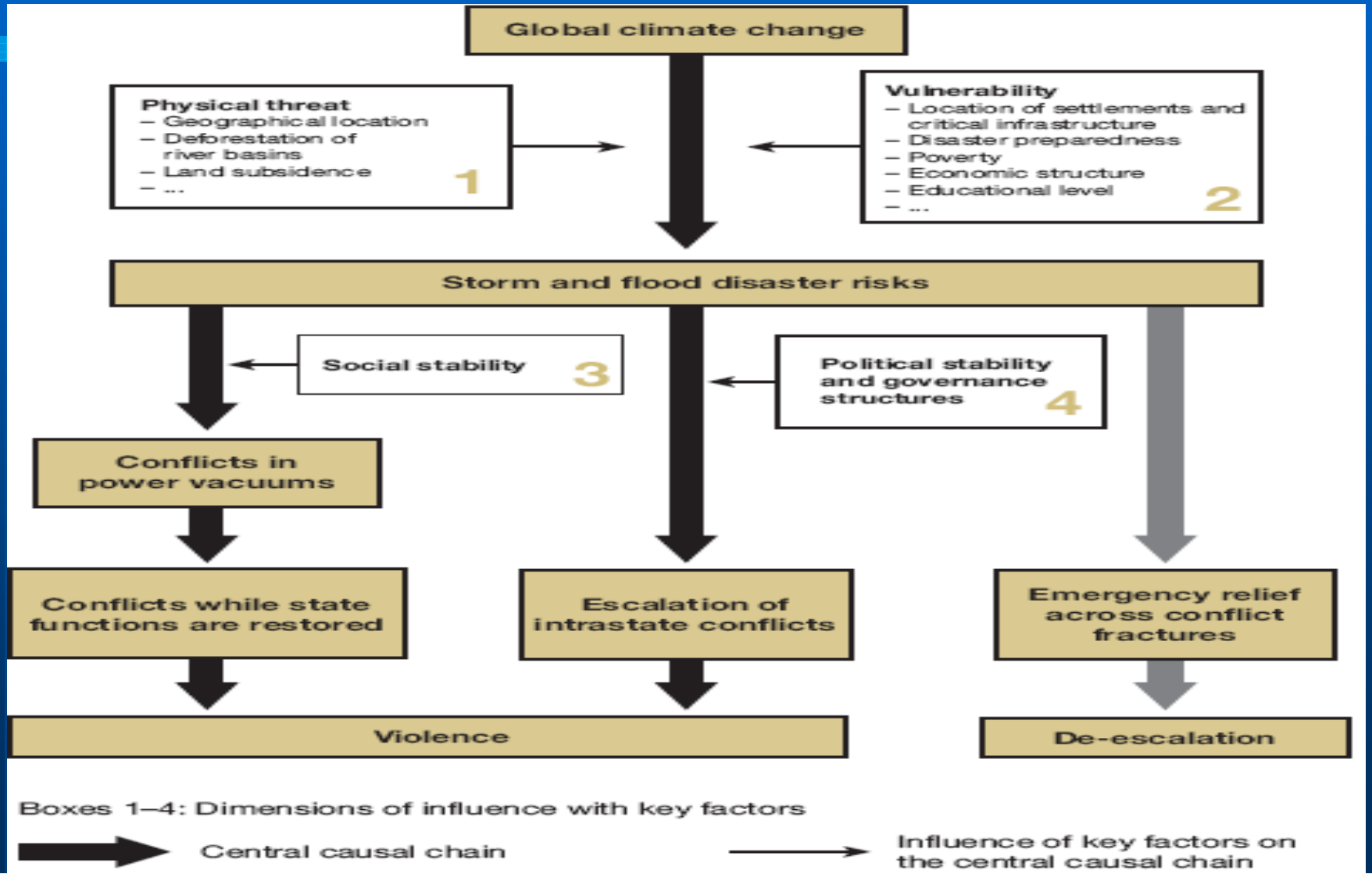


Relevant for states in Mekong River, especially for Laos, Cambodia, Vietnam Myanmar, Thailand

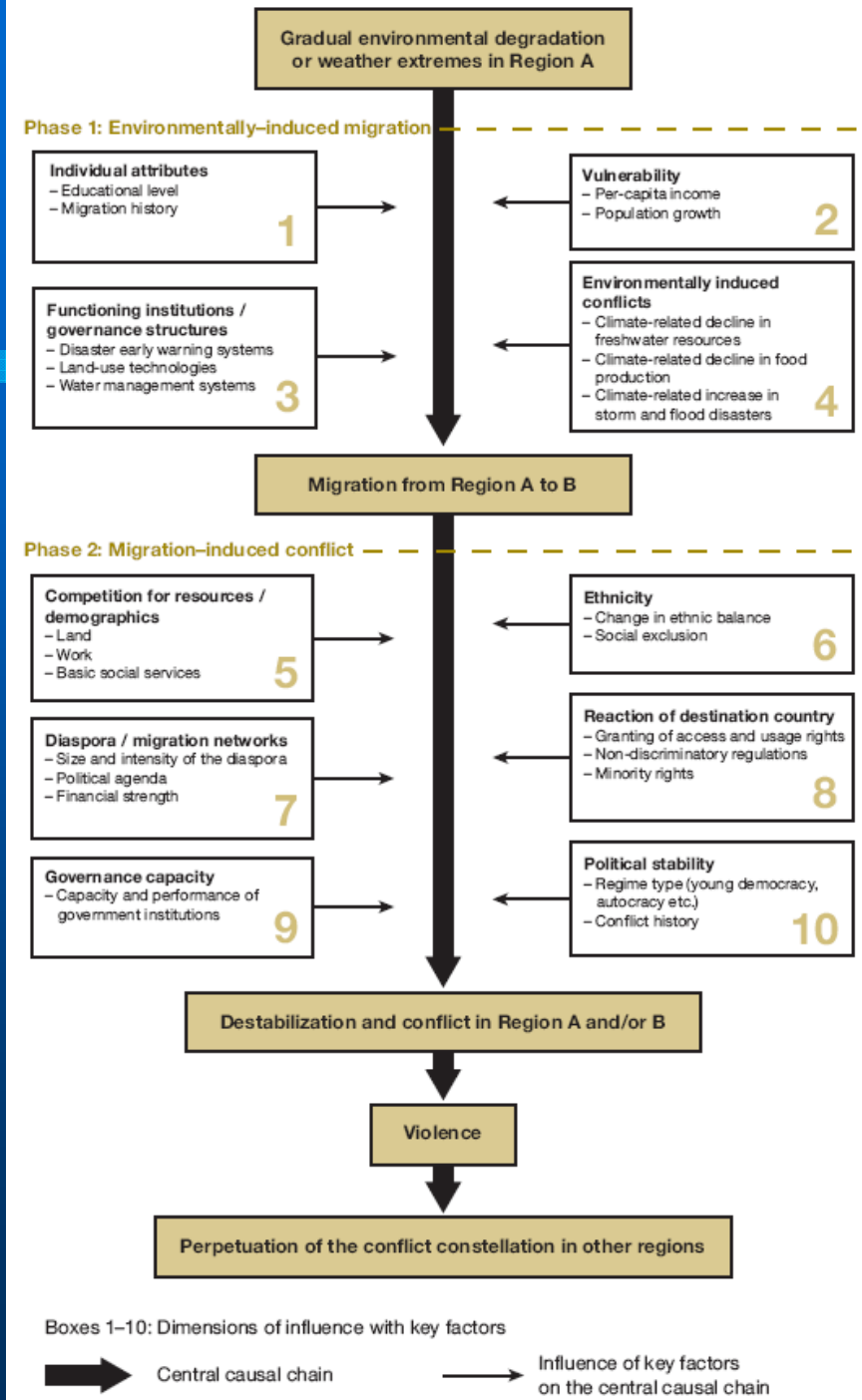
10.16. Conflict Constellation Climate-induced Decline in Food Production



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



10.16. 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?

10.17. 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

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 environmen-tal 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**

11. Conclusions: Research and Policy Suggestions

- **3 traditions: Hobbes, Grotius and Kant**
- **3 contexts: premodern, modern, postmodern state**
- **HS concept debate: referent: state to individual/humankind**
- **HS: 3 pillars: freedom from want, feat and hazard impact**
- **Survey of conceptual thinking on *security threats, challenges, vulnerabilities & risks* stressed a dual need for:**
  - ***more precise definitions*** **trying to reach a consensus on concepts especially on practical political measures to achieve agreed goals;**
  - ***systematisation of the threats, challenges, vulnerabilities & risks*** **for military, diplomatic, economic, societal, environmental & human, food, health, energy, livelihood, and gender security.**