



The UNITED NATIONS ASSOCIATION BELGIUM/FLANDERS

Wednesday 24 March 2010, 12:30 -15.00

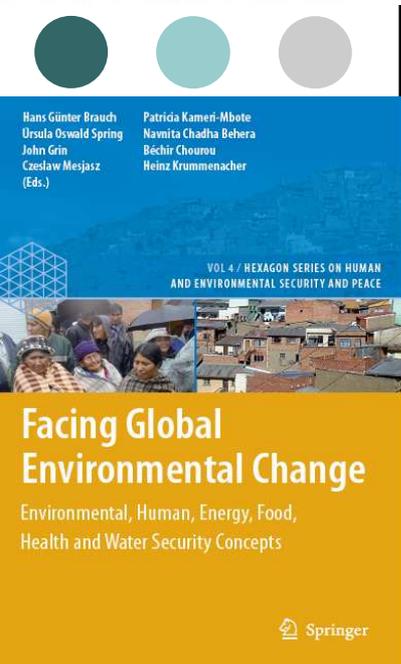
UNRIC, the UN Regional Information Centre, rue de la Loi 155,
1000 Brussels, 7th floor (entry by the Central Hall)

Book Launch

Facing Global Environmental Change Environmental, Human, Energy, Food, Health and Water Security Concepts

© Hans Günter Brauch

Adj. Professor, Free University of Berlin, Otto-Suhr Institute, Berlin
Chairman, Peace Research and European Security Studies
Editor, Hexagon Series on Human, Environmental Security & Peace
Senior Fellow, Institute on Environment and Human Security of
United Nations University (UNU-EHS), Bonn

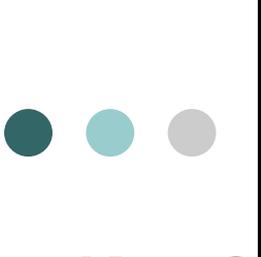


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Institute for Environment
and Human Security

Freie Universität  Berlin





Contents

- 1. Key Questions: International Peace & Security, UN Charter**
- 2. Goal: Global Mapping of the Rethinking on Security**
- 3. Hexagon Series: Human & Environmental Security & Peace**
- 4. Global Environmental & Human Security Handbook**
- 5. Facing Global Environmental Change: *Environmental, Human, Energy, Food, Health and Water Security Concepts***
- 6. Environmental Security: Four Phases of Research**
- 7. Human Security: Four Pillars**
- 8. Global Climate Change Impacts for International, National and Human Security**
- 9. Policy Vision & Perspective for the UN & EU: Towards a Sustainable Peace with a Fourth Green Revolution**
- 10. Annex: Case Study on the Mediterranean**

1. Four Key Questions: *Why? By whom? For whom? What is its relevance for the UN system?*

What are the reasons for this publication project?

Three developments have caused a reconceptualization of security:

- ***First, end of Cold War (1989) resulted in three changes of the security concept:***
 - *in a **widening** of the political and military focus of national and international security to include its economic, societal and environmental dimensions;*
 - *in a **deepening** from the state-centred concepts of “international peace and security” in the UN Charter, and of “national security” of UN member states to non-state referents such as human beings, ethnic and religious groups and humankind. A major innovation was launched by UNDP in 1994 with the human security concept that was introduced by Canada to the UN Security Council. In the Outcome Document of September 2005 the General Assembly was tasked to regularly discuss human security issues.*
 - *a **sectorialization** of security that addresses the specific security relevance of selected policy fields, such as **energy security** (IEA), **food security** (FAO), **health security** (WHO), as well as **water security** (UNEP, UNU). The new concept of **soil security**, UNCCD and the Spanish Environment Ministry launched on 14 May 2009 at the UN Headquarters.*
- ***Second, with globalization many non-state actors and processes have caused security dangers for states, international organizations and human beings: terrorism, organized crime (illegal trafficking of weapons, drugs, human beings and organs) and the uncontrolled financial flows that caused the present global economic crisis.***
- ***Third, since 2000, problems of global environmental change were securitized by UN members who declared them **issues of utmost importance** that require **extraordinary policy responses**. Climate change was discussed first on 17 April 2007 by the UN Security Council.***



1.1 *What are the reasons for this publication project?*

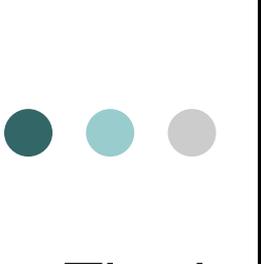
These developments are reflected in this security handbook for the Anthropocene, the era of earth history affected by human activities.

- The first volume on ***Globalization and Environmental Challenges*** (2008) focuses on the first two reasons.
- This volume on ***Facing Global Environmental Change*** addresses the securitization of climate change, water, desertification, population change, urbanization and natural hazards.
 - The second focus is on sectoral security on ***energy, food, health and water as well as on environmental, human and gender security***. The volume concludes with proposals ***from knowledge to action*** linking sustainable development with sustainable peace.
 - This book offers ***assessments*** of problems of global environmental change, humankind and states face in the 21st century and ***reviews*** policy debates and scientific discourses on new security concepts and environmental and human security issues.
- The third book on ***Coping with Global Environmental Change*** follows in summer. It addresses threats, challenges, vulnerabilities and risks and policies for adaptation and mitigation to global environmental change.



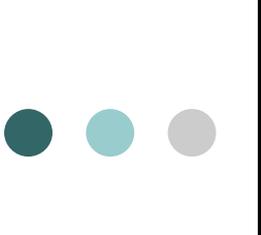
1.2 By whom is this environmental and human security handbook?

- This handbook includes about **270 chapters by 300 authors from 100 countries**. The editors and peer reviewers worked hard to guarantee high standards.
- The handbook was **edited by 11 scientists from 10 countries and of this volume four co-editors come from Africa, Asia and Latin America and four from Europe**.
- Among its **132 authors of this book** are Mr. Steiner, Prof. Ogwu and Prof. R. Pachauri, the chairman of the IPCC that received the Nobel Peace Prize in 2007. Prof. Tony Allan received the Stockholm Water Prize of 2008. All authors, editors and reviewers worked for free.
- In these books the South is not an object, many authors are distinguished scientists from developing countries that analyse the problems of their own region.
- The volume combines distinguished scientists and promising young scholars.



1.3 For whom? The Audience

- The handbook was written for scholars, policy advisers & policy-makers, journalists and students globally and it should be available in libraries of universities, research institutes and ministries that can afford this huge compilation of global scientific and policy relevant topical knowledge.
- This handbook is available as a **hardcover**, as an **electronic book** & all chapters may be purchased on the internet.
- We plan a new **book aid project** to get these volumes to university libraries in developing countries that cannot afford such reference books.
- Of the Mediterranean Book of this Hexagon book series we sent 260 copies to national and university libraries in 90 countries. We plan to launch a new book aid project for our security handbook in 3 volumes.
- All donors & recipients are documented on a special website.



1.4. Relevance for the UN System

- Security is a key concept of international and national politics, a basic value in societies, cultures and religions. Maintaining and achieving security is a major reason for spending public resources on the national and international level.
- Meaning of security matters for the UN, its member states and peoples.
- Maintaining “international peace and security” is a key goal of the UN Charter. Achieving human security “in larger freedom” is a key goal of the UN Secretary-General. Environmental, food, health, water and soil security are policy priorities for specialized agencies, programmes, secretariats and networks within the UN system.
- Human security is a key goal of the *Human Security Network* and of the *Friends of Human Security* and has resulted in several initiatives in the UN Security Council and in the General Assembly.
- Environmental, water, soil, food and health security are key concerns and areas of political activity of the UN system.
- The editors and authors want to foster a global anticipatory learning and to contribute knowledge for proactive policies.
- To be able to act early requires **anticipatory recognition** of future threats and **learning** as well as the **political will** to implement **proactive multilateral cooperative policies**.

1.5 International Peace & Security in the UN Charter

- **UN Charter: Peoples and Nations (human vs. inter(national) security)**
 - **Preamble: “We the Peoples of the UN determined”:**
 - **Art. 1 of UN Charter: Purpose of the UN “to maintain international peace and security” ...**
- **Has the security concept changed in 65 years and how relevant is the reconceptualization of security for policymakers at UN but also at the EU, NATO and OSCE?**



1.6. Change in meaning of security in SC Resolutions

- **Security Council Resolutions since 1990 (M. Bothe)**
 - Erosion of sovereignty: change, Art. 2,7: Nonintervention principle
 - Humanitarian intervention: debate on responsibility to protect
 - SC addressed human security (1990) & climate change (2007)
- **General Assembly: since 2005 & 2009**
 - UNDP (1994) introduced human security, GA 2008 started debate
 - GA: Resolution on climate change & internat. peace & security
- **Secretary-General: Report: Climate Change & Internat. Security of 11 September 2009**
- **Future question in the 21st century: May security impacts of global environmental and climate change pose a “threat to peace” under Art. 39 and may the SC then be entitled to decide “what measures shall be taken ... to maintain ... IP&S”?**
- **This question is sensitive and not topical today!**

1.7. Policy Relevance: OSCE/NATO/EU

Environmental, Human & Climate Security

Conceptual debate has operative relevance

○ Environmental Security: NATO (since 1995)

- Science Programme: Public Diplomacy Division

- Conferences & research projects, dialogue

- Funded workshops (Canterbury, The Hague, Istanbul)

○ Human/Climate Security: European Commission

- Solana: 2004: Human Security Doctrine for Europe

- 'Climate Change & Security': Since March 2008

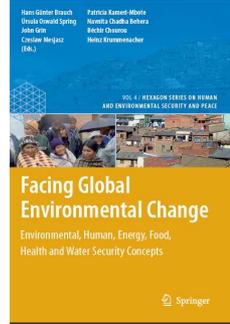
○ OSCE: Environmental & Climate Security

- Madrid Declaration: environmental security (2007)

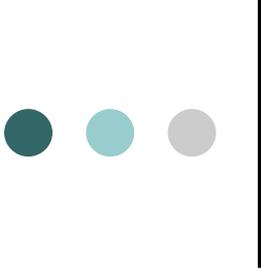
- March 2010: Scoping study: Security & Climate Ch.



2. Goal: Global Mapping of Rethinking on Security



- “Reconceptualization of Security” has occurred, matters and is highly policy relevant for (inter)national policy
- Contextual change and conceptual innovation and since 1990 there has been a **widening, deepening and sectorialization** of security concepts
- Goal: Global **conceptual mapping of the rethinking of security concepts** and partly a redefinition of its tasks
- Main focus has been on the **environmental dimension of human security in multilateral contexts** (UN, EU et al.)
- Means: conceptual research and scientific dialogue
- **Focus Vol. IV+V Global Anthropogenic Environmental Change**
 - Nobel Laureate Paul Crutzen (MPI for Chemistry in Mainz): **Anthropocene**: phase of Earth history since industrial revolution
 - Goal: Conceptual Foundation and Long-term Thinking on a new **Security and Peace Policy for the Phase of the Anthropocene**, that combines sustainable development with sustainable peace.



2.1 Conceptual Innovations in the Social Science Discourse on Security

Objective, subjective, intersubjective security

- **Wolfers (1962)** pointed to two sides of the security concept: “Security, in an **objective sense**, measures the **absence of threats to acquired values**, in a **subjective sense**, the **absence of fear that such values will be attacked**”.
- From a constructivist approach in international relations ‘security’ is the outcome of a process of social & political interaction where social values & norms, collective identities & cultural traditions are essential. Security: **intersubjective** or “**what actors make of it**”.

Copenhagen school: Buzan/Wæver/De Wilde: On security (^98)

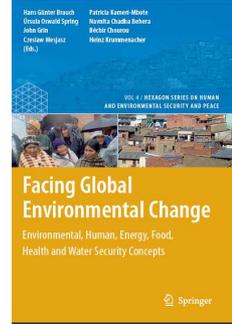
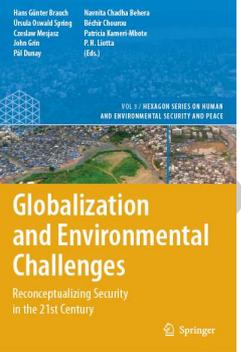
- **Buzan’s**: widening & deepening;
- **Wæver’s** securitization theory

● ● ● | 2.2. Theory of Securitization

Ole Wæver's Securitization Theory (1995)

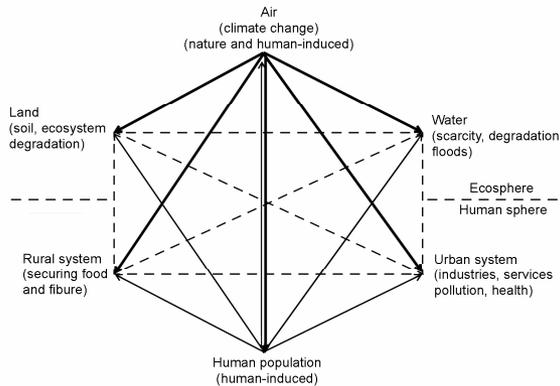
- Copenhagen school security as a **“speech act”**, “where a securitizing actor designates a threat to a specified reference object and declares an existential threat implying a right to use extraordinary means to fend it off”.
- Such a process of **“securitization”** is successful when the construction of an “existential threat” by a policy maker is socially accepted and where “survival” against existential threats is crucial.

2.3. Buzan: Widening, Deepening and Sectorialization of Security Threats, Challenges, Vulnerabilities & Risks



| Security dimension ► Level of interaction ▼ | Military | Political | Economic | Environmental ▼ | Societal |
|--|----------------------------|-----------|---|-----------------|----------|
| Human ► | | | Securing soil, water, food, health, livelihood and energy for human beings combining all levels of analysis & interaction | | |
| Village/Community/Society | | | ▼▲ | | |
| National | Security dilemma of states | | Social, energy, food, health, livelihood and soil threats may pose a survival dilemma in areas with high vulnerability | | |
| International/Regional/Global | Security of the territory | | | | |

3. Hexagon Book Series on Human and Environmental Security and Peace



—→ direct impact of nature and human-induced "root cause": climate change on five factors
 —→ direct impact of human-induced "root cause": population on five factors
 - - -> complex interaction among four structural factors: land, water, urban and rural systems

Hexagon book series offers a platform for scientific communities on

- global environmental & climate change, disaster reduction, human, environmental, gender security,
- Peace, security, development & environmental studies
- for the humanitarian aid and the policy community in national governments and international organizations.

Scientific & Policy Goals:

- Impacts of anthropogenic global environmental & climate change on the security of states & human beings (humankind)
- This requires a „Reconceptualization of Security“
- Global mental mapping of the rethinking on security

○ Multi-, Inter- & Transdisciplinarity:

○ International and Diversity

- Beyond the dominant thinking of the „top billion“ of the triad

○ Dialogue: scientists and policy-makers

- Former or active policymakers, diplomats, military officers
- Experienced scholars but also young talents

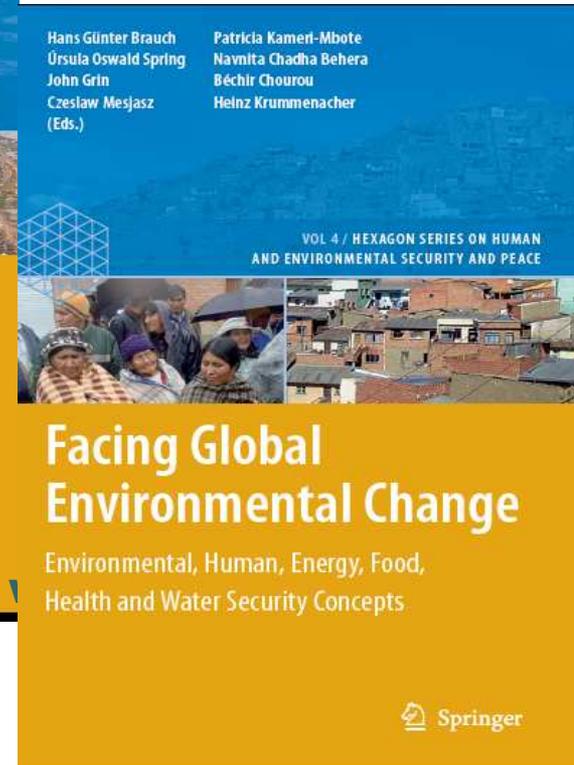
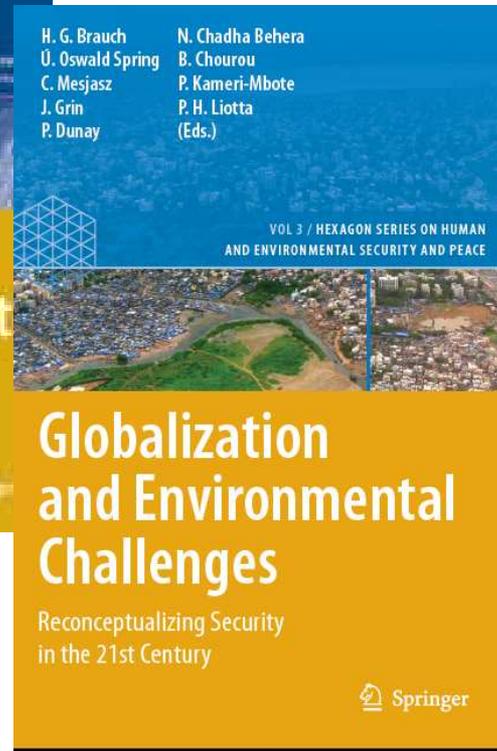
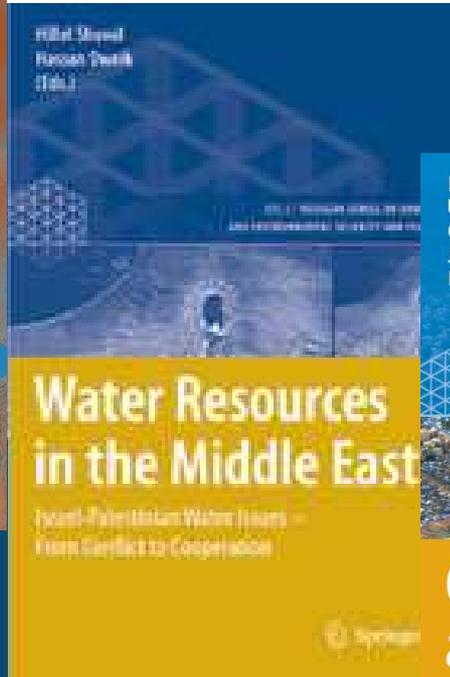
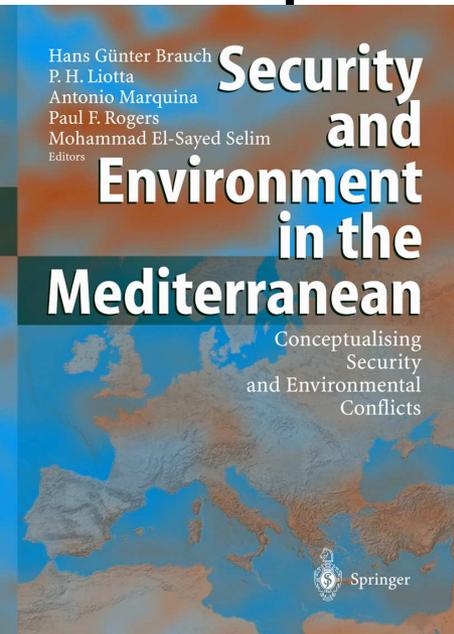
6 causes of anthropogenic GEC supply side

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

Human-induced demand side

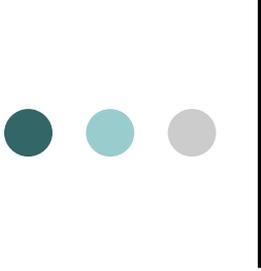
- Population growth
- Urbanization, Pollution, Health
- Rural systems: Agriculture

3.1 Hexagon Series: Volumes I -IV



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

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



3.2. Hexagon Series: Volumes V - IX in Preparation

To be published in 2010

- **Vol. 5:** Hans Günter Brauch, Úrsula Oswald Spring, Czeslaw Mesjasz, John Grin, Patricia Kameri-Mbote, Béchir Chourou, Pal Dunay, Jörn Birkmann (Eds.): *Coping with Global Environmental Change, Disasters and Security – Threats, Challenges, Vulnerabilities and Risks.*
- **Vol. 6:** ThanhDam Truong, Des Gapter (Eds.): *Transnational Migration: The Migration - Development – Security Nexus.*
- **Vol. 7:** Úrsula Oswald Spring (Ed.): *Water Resources in Mexico.*

To be published in 2011

- **Vol. 8:** Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link, Janpeter Schilling (Eds.): *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability*
- **Vol. 9:** Czeslaw Mesjasz: *Stability, Turbulence or Chaos? Systems Thinking and Theory and Policy of Security*

3.3 vol. III: Spanish, Turkish & Greek Short Editions in 2008-2010



- **Turkish Editions (2008-2009):**
 - ***ULUSLARARASI İLİŞKİLER (International Relations) SPECIAL ISSUE ON SECURITY***
 - **Guest Editors:** Hans Günter Brauch, Freie Universität Berlin, Mustafa Aydın, Rector, Private University, Istanbul, Türkiye; Ursula Oswald Spring, UNAM/CRIM, Cuernavaca, Mexico;
 - **Turkish book in preparation: about half are translations from Hexagon Book Series**
- **Spanish Edition (2009): UNAM - AFES-PRESS**
 - **Ursula Oswald Spring & Hans Günter Brauch** in cooperation with: Ulrich Albrecht, Eugenio Diniz, Ann Masson, Domício Proença Jun., Francisco Rojas Aravena, Georgina Sánchez, John Saxe Fernández, Arlene Tickner, Ole Wæver, S. Dalby:
Reconceptualizar la Seguridad en el Siglo XXI (Mexico D.F. – Cuernavaca: UNAM/CRIM, May 2009)
- **Greek Editions (2010): 2 Editions of Agora**
Guest editors: HG. Brauch, U. Oswald Spring, Charalambos Tsardanidis and Amb. Yannis Kinnas
- **Arab edition in discussion/fundraising process**

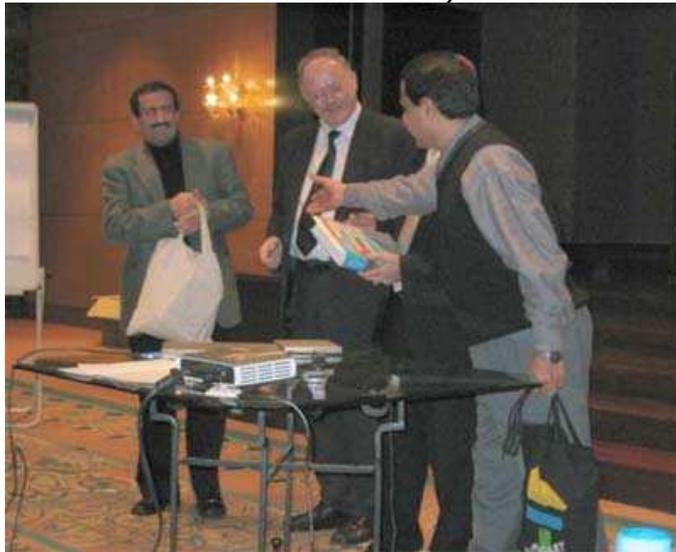


3.4 First Bookaid Project for Third World University Libraries

I

In 2003-2004 AFES-PRESS sent 260 copies of vol. 1 to national & university libraries in more than 90 countries in

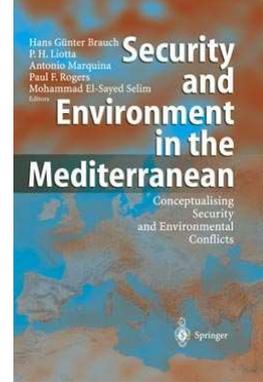
- Middle Eastern countries
- Africa, Asia, Latin America
- Selected OSCE states,



- Launch of Bookaid in Amman, Jordan
- December 2003

The book aid project was made possible by grants by:

- Berghof Foundation for Conflict Research, Germany (120 books)
- **Public Diplomacy Division of NATO (117 books)**
- Sparkasse Neckartal-Odenwald, Germany (11 books)
- Peter Dornier Foundation Germany (5 books)
- AFES-PRESS, Germany (19 books)





3.5 Bookaid Project for University Libraries in Third World



Prof. Dr. Klaus Töpfer, former Executive Director, UNEP (1997-2006)

- “This book deserves many readers in all parts of the world, especially in those countries where university and research libraries may not be able to afford such references books.”

Achim Steiner, Exec. Director, UNEP

- I hope that private foundations and donors can ensure that its important ideas, debates and essential reading find their way equally onto the library book shelves of the South as well as the nations of the North.

German Academic Exchange Service:

- 100 copies of vol. IV

Federal Ministry for Education & Science

- 75 copies of vol. III and IV (150)

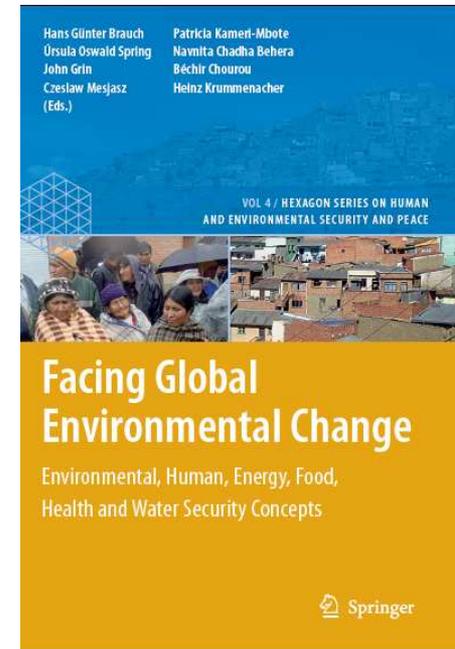
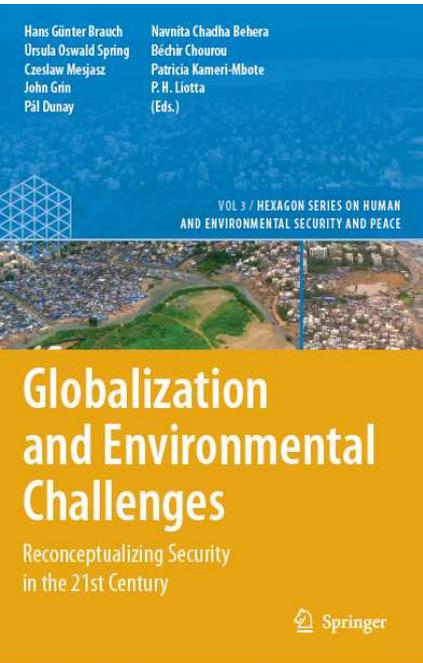
Transfer of book gifts to the University of Nairobi, Kenya; El Colegio de Mexico, Kofi Annan Centre, Accra, Gov. Singh, Rajasthan in Jaipur, Chancellor Univ. Rajasthan PM of Guyana



Annan Centre, Accra

4. Global Environmental and Human Security Handbook for the Anthropocene

- **Globalization and Environmental Challenges:** 92 authors, 36 countries, 16 disciplines, former vice presidents, ministers, generals, diplomats (2008)
- **Facing Global Environmental Change:** 132 authors, 49 countries on global debate and problems of environmental, human, energy, food, health, water security (2009)
- **Coping with Global Environmental Change Disasters and Security – Threats, Challenges, Vulnerabilities and Risks (2010)**



Forewords by **Stavros Dimas**, EU Environment Commissioner

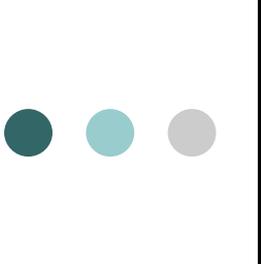
Prof. Hans van Ginkel, Rector of UNU (1997-2007);

Prof. Klaus Töpfer, Executive Director, UNEP (1997-2006).

Forewords by **R.K. Pachauri**, TERI; IPCC chairman, Nobel Peace Prize (2007)

Achim Steiner, UNEP Executive director, **Joy Ogwu**, former foreign minister, Nigeria

Stavros Dimas, EU Environment Commissioner



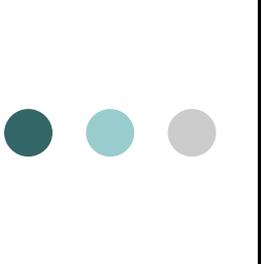
4.1. Workshops: Invitation of Authors from around the world

- 2004 2 Panels at ISA Conference in Montreal**
- 2004 20th IPRA Conference in Sopron, Hungary**
- 2004 10 panels at 4th Pan-European Conference on International Relations in The Hague**
- 2005 1st World Conference on International Relations in Istanbul**
- 2005 6th, 7th Open Meeting of IHDP in Bonn**
- 2008 2nd World Conference on International Relations in Ljubljana (Slovenia)**



4.2. Editorial Team: 11 Co-editors from 10 Countries

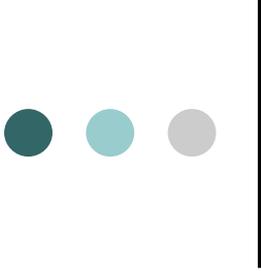
- **Hans Günther Brauch**, PD (Adj. Prof.) at the Free University of Berlin, chairman of AFES-PRESS, fellow at UNU-EHS in Bonn and editor of this series
- **Úrsula Oswald Spring**, Professor at National University, Mexi-co; UNU-EHS chair on social vulnerability; writes on sustainability, development,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



4.3. Sponsors

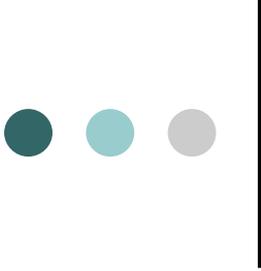
Difficulty of finding sponsors:

- 11 editors and 300 authors worked for free.
- My basic funding 2005-2009: private Berghof Foundation for Conflict Research (54 months)
- Workshops: NATO, public diplomacy division, Mediterranean Dialogue: The Hague, Istanbul
- Contribution to workshops in Montreal, Sopron and The Hague: European Commission
- Book Aid: NATO, Berghof Foundation, DAAD, BMFT, major fundraising in 2010 & 2011



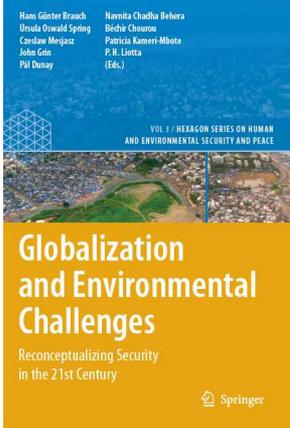
4.4. Endorsements with Forewords & Preface Essays

- Under Secretary-General and Executive Director of UNEP, Prof. Dr. Klaus Töpfer (III) and Achim Steiner (VI, V)
- Under Secretary-General, Rector, United Nations University, Prof. Dr. Hans van Ginkel (III), Prof. Dr. Konrad Osterwalder (V)
- EU Commissioner for the Environment, Stavros Dimas (III, IV)
- Assist. Secretary, NATO for Public Diplomacy, J.F. Bureau (V)
- Former Foreign Minister of Nigeria, Prof. Dr. Joy Ogwu (IV, V)
- Former Defence Minister of Spain, Mr. Narcis Serra (III)
- Former Environment Minister, Morelos, Prof. Dr. Oswald Spring
- Nobel Peace Laureate, Chairman, IPCC, R. Pachauri (IV)
- HRH Prince Hassan bin Talal, Hashemite Kingdom, Jordan (V)



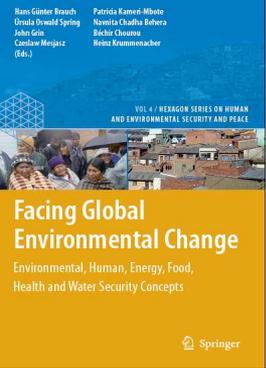
4.5. Book Launches of vol. III & IV

- UN Headquarters in New York (2008, 2009)**
- German Foreign Ministry in Berlin (2008, 2009)**
- Brussels (14 July 2008, 24 March 2010)**
- Mexico City and Cuernavaca (2008)**
- At international conferences in San Francisco (2008), Leuven (2008), Ljubjana (2008), Geneva**
- By United Nations Associations in Stuttgart, Munich and today here in Brussels**
- Spanish edition: Mexico, Peru, Argentina, Brazil**



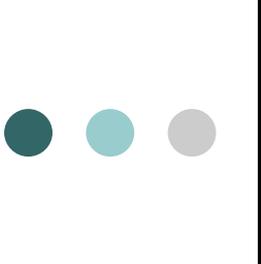
4.6 Structure of Volume III: Globalization & Environmental Challenges (75 peer reviewed chapters)

1. Introduction
2. Conceptual quartet: peace/security/developm./environm.
3. Philosophical, ethical, religious contexts for conceptualization of security
4. Spatial context: actors and referent objects
5. Reconceptualization of security disciplines
6. Reconceptualization of security dimensions
7. Reconceptualization of security in UN,EU,OSCE,NATO
8. Reconceptualization of regional security
9. Reconceptualiz. security & alternative security futures
10. Summary and conclusions



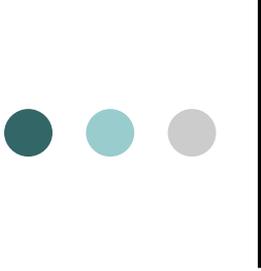
5. Two Key Themes of Volume IV: GEC & Sectorialization of Security (100 peer reviewed chapters)

- **Facing Global Environmental Change (GEC)**
 - 1: **Contextualization of Global Environment. Change(1-3)**
 - 2: **Securitization of GEC (chap. 4-14)**
 - 3: **Securitization: Extreme Natural & Societal Outcomes**
- **Sectorialization of Security**
 - 4: Energy security (chap. 23-32)
 - 5: Food Security (chap. 33-35)
 - 6: Health Security (chap. . 36-40)
 - 7: **Water Security (chap. 41-58). TONIGHT**
 - 8: **Environmental Security (chap. 59-73)**
 - 9: **Human and Gender Security (chap. 74-96)**
 - 10: From Knowledge to Action (chap. 97-100)



5.1. Global Environmental Change

- **First 2 reasons for a reconceptualization of security: End of cold war & globalization:** new international order & actors
 - First peaceful transition of international order (1989-1990)
 - New transnational security threats: 2001, 2008-2010
- **Global Environmental Change: issues of sustainable dev.**
 - **Scientization:** scientific agenda-setting, networking, research
 - Since 1970's: conferences, agenda setting
 - Since 1980s & 1990s: 4 research programmes: WCRP, IGBP, IHDP & Diversitas, since 2001: Earth Systems Science Partnersh
 - **Politicization:** 1992 Rio de Janeiro (UNCED), 2002 (UNSSD)
 - UNFCCC, CBD, UNCCD and water regime (WWF, WWW, GWP)
 - **Securitization:** Since 2000 of water, since 2002 of climate change and since 2003/2009 of desertification & soil



5.2. Sectorialization of Security

Concepts have been used by international organizations by upgrading the political urgency and requiring extraordinary policy responses for coping with these challenges.

Energy security: since oil shocks of 1973: Creation of International Energy Agency (IEA): supply security (for consumers) but also demand security (for producers)

Food Security: since 1970s developed by FAO (Rome): right to the access of sufficient and healthy food (supply security) but also **food sovereignty**

Health Security: by WHO (with regard to pandemics): SARS, Swine Flu etc. with different referent objects (international, national and human security)

Soil Security: UNCCD (Brauch/Oswald Spring 2009)

5.3. Environmental & Human Security

Expanded Security Concepts (Møller, '03; Oswald '01)

| Label | Reference object | Value at risk | Source(s) of threat |
|-------------------------------|-----------------------|------------------------------|--------------------------------|
| National security | The State | Territorial integrity | State, sub-state actors |
| Human security | Individual, humankind | Survival | Nature, state, global. |
| Environmental security | Ecosystem | Sustainability | Humankind |

5.4. Structure of vol. V: **Coping with Global Environmental Change *Disasters and Security – Threats, Challenges, Vulnerabilities and Risks***

(95 peer reviewed chapters)

- I : Concepts of Security Threats, Challenges, Vulnerabilities & Risks (1-5)**
- II: Military & Political Security Threats, Challenges, Vulnerabilities, Risks (6-19)**
- III: Econ., Social, Env. Security & Human Threats, Challenges, Vulnerabilities & Risks in Near East, North & Sub-Sahara Africa & Asia (20-28)**
- IV: Threats, Challenges, Vulnerabilities and Risks for Urban Centres in Hazards and Disasters (29-39)**
- V: Coping with Global Environmental Change: Climate Change, Soil and Desertification, Water Management, Food and Health (40-67)**
- VI: Coping with Hazards & Strategies for Coping with Social Vulnerability & Resilience Building (68-72)**
- VII: Coping with Global Environmental Change: Scientific. International, Regional and National Political Strategies, Policies and Measures (73-89)**
- VIII: A Technical Tool: Remote Sensing, Vulnerability Mapping and Indicators of Environmental Security Challenges and Risks (90-91)**
- IX: Towards an Improved Early Warning of Conflicts and Hazards (92-93)**
- X: Outlook and Suggestions: Political Geo-ecology and Fourth Green Revolution (94-95)**

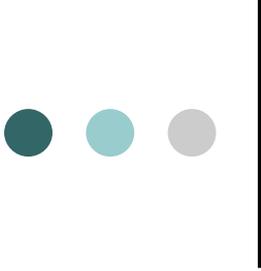
5.5 Endorsements: Forewords and Preface Essays of Volume V

Forewords

- Konrad Osterwalder, Undersecretary General of the United Nations and Rector, United Nations University, Tokyo
- Achim Steiner, Undersecretary General of the United Nations and Executive Director of UNEP
- Jean-Francois Bureau, Assistant Secretary General for Science and Public Diplomacy of NATO
- Joy Ogwu, Ambassador, former foreign minister of Nigeria
- His Royal Highness, Prince Hassan Bin Talal of Jordan

Preface Essays

- Paul C. Crutzen, Nobel laureate in Chemistry:
- Hania Zlotnik, Director, UN Populations Division, United Nations, New York:
- C. Müller, H. Lotze-Campen, V. Huber, A. Popp, A. Svirejeva-Hopkins, M. Krause, Hans Joachim Schellnhuber, PIK:
- Ulrich Beck, University of Munich and LSE (accepted invitation)
- Jayantha Dhanapala, President, Pugwash Conferences on Science and World Affairs, recipient of the Nobel Peace Prize 1995



6. Environmental Security: Three Phases of Research

1. Conceptual Phase: Concept Environmental Security

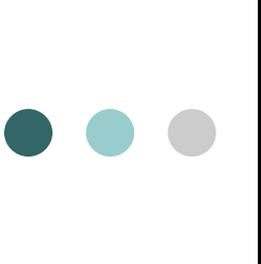
- ❖ Brundtland-Commission (1987), Gorbachev (1987), NATO (1996-)
- ❖ Inclusion of environmental factors in US national security agenda
 - ❖ Ullman (1983), Myers (1989), Mathews (1989)
 - ❖ Clinton Administration: major task of US Department of Defense

2. Empirical Phase: Case studies: Scarcity - Conflict

- Toronto: Thomas Homer-Dixon: since 1991: 3 Projects
- Zürich/Bern: G. Bächler, K. Spillmann (3 volumes 1996,1997)

3. Phase: Manifold Research without Integration (1995-)

- Swiss Project: Mitigating Syndromes of Global Change
- Neo-Malthusians: Resource scarcity as a cause of conflict
- Cornucopians: Resource abundance as a cause of conflict: Bannon, Collier et al. in cooperation with the World Bank
- Many different directions but no accumulation and synthesis

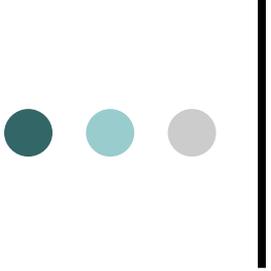


6.1. Tasks for a Fourth Phase of Research on Environment & Security

My own proposal (2003-2004) for a **Fourth Phase** of a **Human & Environmental Security and Peace (HESP)** project

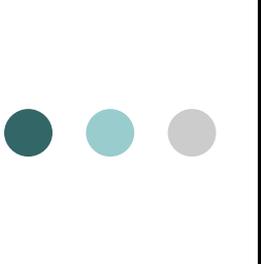
1. **Broaden research stakeholders:** Bring together those working on human & environmental security issues with the peace research, development, environmental research communities.
2. **Broaden empirical focus:** on six causes of the Survival Hexagon & interactions (nat. sciences: simulation techniques, modelling).
3. **Focus on extreme, fatal outcomes & interactions:** disaster, migration, crises, conflict & efforts for resolution, prevention & avoidance.
4. **Broaden policy constituency:** climate change, disaster & early warning (disaster & conflict) & conflict prevention community.
5. **Support mainstreaming of policy initiatives: early warning, adaptation & mitigation & conflict prevention,**
6. **Make environmental security challenges also a human security concern and introduce them into the human security discourse (HSN)**
7. **Authors from peace research have contributed to both debates and could build conceptual bridges than authors from Security Studies.**

Requires: Multidisciplinarity & horizontal cooperation in governments, ministries, between DGs, often suboptimal



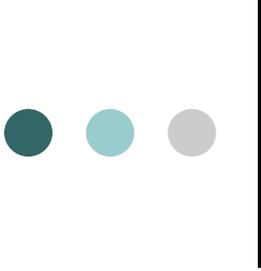
6.2 Goals for the Fourth Phase of Environmental Security

- 3 chapters by three authors from three disciplines and countries
 - Hans Günter Brauch, political scientist (Germany)
 - Simon Dalby, geographer (Ireland, UK, Canada)
 - Ursula Oswald Spring, social anthropologist, ecologist (Mexico)
- **Dalby-Brauch-Oswald Spring: ch. 59 (IV)** environmental security concepts revisited during the first three phases (1983-2006)
- **Oswald Spring-Brauch-Dalby:** Linking Anthropocene, HUGE & HESP: 4th phase of environmental security research (**99, IV**)
- **Brauch-Dalby-Oswald Spring:** Towards a “political geo-ecology”
 - bringing the political and security dimension into earth systems science and into geocology (in physical geography)
 - introducing knowledge from the natural sciences (climatology, hydrology, soil science) into the geopolitical discourse (**94, V**)



7. Human Security: Four Pillars & Human Security Doctrine for Europe

- UNDP Human Development Report (1994) *New Dimensions of HS*
 - Security ... means **safety** from the constant threat of hunger, disease, crime and repression. It also means **protection** from sudden and hurtful disruption in the pattern of our daily lives – whether in our homes, in our jobs, in our communities or in our environment.
- Human Security Commission: Human Security Now (Ogata/Sen)
 - Human security complements state security, enhances human rights and strengthens human development. It seeks to **protect** people against a broad range of threats to individuals and communities and, further, to **empower** them to act on their own behalf. And it seeks to forge a global alliance to strengthen the institutional policies that link individuals and the state – and the state with a global world. **Human security thus brings together the human elements of security, of rights, of development.**
 - The Commission on Human Security's definition of human security: **to protect the vital core of all human lives** in ways that enhance human freedoms and human fulfilment. Human security means protecting fundamental freedoms – freedoms that are the essence of life. It means **protecting** people from critical (severe) and pervasive (widespread) threats and situations. **It means using processes that build on people's strengths and aspirations.** It means creating political, social, environmental, economic, military and cultural systems that together give people the building blocks of survival, livelihood and dignity.



7.1 Which studies were crucial?

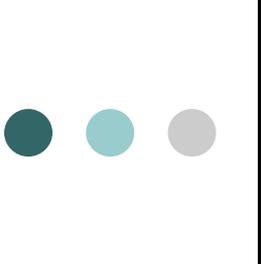
1. Kofi Annan's Report: In Larger Freedom (March 2005)

2. UN, GA, *World Summit Outcome*, 24 October 2005:

143. We stress the right of people to live in freedom and dignity, free from poverty and despair. We recognize that all individuals, in particular vulnerable people, are entitled to freedom from fear and freedom from want, with an equal opportunity to enjoy all their rights and fully develop their human potential. **To this end, we commit ourselves to discussing and defining the notion of human security in the General Assembly.**

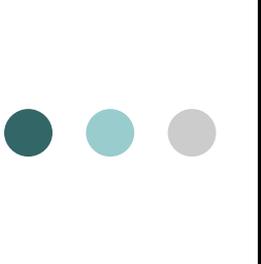
3. UNESCO publications: 1996-2008

Goucha/Crowley: Rethinking Human Security (2008).



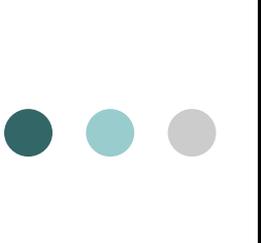
7.2 Four Pillars of Human Security

- **“Freedom from want”** human development agenda: **poverty** (stimulated by Asian economic crisis of 1990s) by reducing social vulnerability through poverty eradication programmes (UNDP 1994; CHS: Ogata/Sen: Human Security Now, 2003, Human Security Trust Fund, HSU of OCHA), **Japanese approach**;
- **“Freedom from fear”**: humanitarian agenda: **violence, conflicts, weapons** (Canada, Norway, Human Security Network) (UNESCO, HSN), **Canadian approach**: Human Security Rep.(2005)
- **“Freedom to live in dignity”**: agenda: **rule of law, human rights, democratic governance** (Kofi Annan: *In Larger Freedom* (March 2005))
- **“Freedom from hazard impact”**: **environmental (GEC) & natural hazard agenda**: goal: securitize: “environment” (GEC as pressure) and “natural hazards” as impact by reducing environmental & social vulnerability & enhancing coping capabilities of societies confronted with natural & human-induced hazards ->**Greek Presidency of HSN.**



7.3 First Pillar of Human Security: Freedom From Fear (Canada/Norway)

- **Narrow:** pragmatic, conceptually precise, **Goal:**
 - “to provide security that individuals can pursue their lives in peace”
 - “lasting security cannot be achieved until people are protected from violent threats to their rights, safety or lives” (**FA Canada**)
- **Threats:** inter-state wars, intra-state conflicts, criminality, domestic violence, terrorism, small arms, inhumane weapons, land-mines, “to provide security so individuals can pursue their lives in peace” (Krause 2004).
- **Requirements and objects:**
 - **Rule of Law:** ICC, International Court of Justice and national, regional and local judicial courts and mechanisms
 - **Universal Humanitarian Standards:** initiatives in inter. humanitarian and human rights law, human development, human rights education,
 - **Good Governance:** capacity building of not only national, but regional and local governments or leadership authorities; fostering democracy; respect for minorities
 - **Conflict Prevention/ Post-Conflict Reconstruction:** land mines, child soldiers, protection of civilian population in armed conflict, small arms and light weapons, trans-national organized crime (Ottawa Convention)
 - **Strong intern. institutions** that can support & enforce above



7.4 2nd Pillar of Human Security: Freedom From Want (Japan)

- **Broad:** wider agenda, conceptually more convoluted
- **Goal:** reducing individual/societal vulnerabilities in the economic, health, environment, political, community, and food sphere. Create conditions that can lead to empowerment for individuals,
- **Japanese FM:** HS “comprehensively covers all menaces that threaten human survival, daily life, and dignity...and strengthens efforts to confront these threats”
- **Threats:** diseases, poverty, financial crises, hunger, unemployment, crime, social conflict, political repression, land degradation, deforestation, emission of GHGs, environmental hazards, population growth, migration, terrorism, drugs

Ogata/Sen: 2 Approaches: Protection & Empowerment

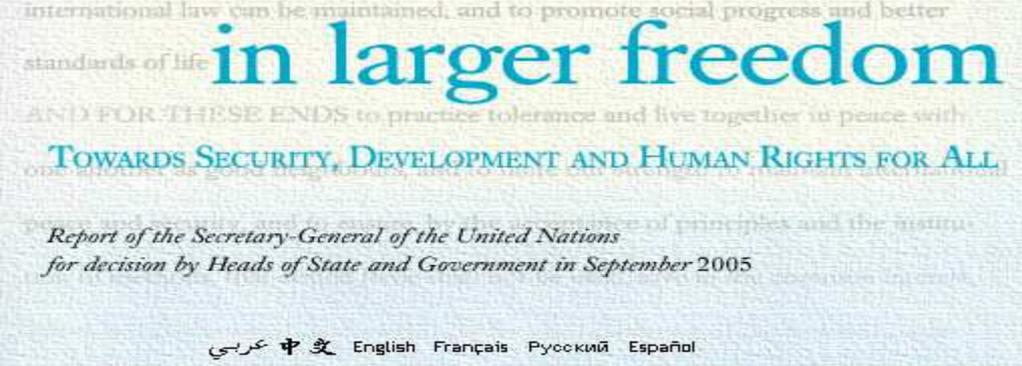
Protection:

- protection in violent conflict and proliferation of arms
- protection and funds for post-conflict situations
- strengthening the rule of law
- developing norms and institutions to address insecurities

Empowerment:

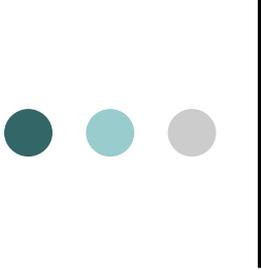
- achieve UN Millennium Development Goals, poverty eradication
- sustainable development
- universal access to basic health care and universal education

- **Protection and Empowerment are Mutually Reinforcing!**



7.5 Third Pillar of HS: “Freedom to live in dignity” (Annan 2005)

- **In Larger freedom: development, security and human rights:** In Millennium Report, Annan drew on UN Charter preamble “We the peoples” (A/54/2000).
- **Poverty & denial of human rights** may not “cause” civil war, **terrorism or organized crime**, all greatly increase the risk of instability and violence.
- No **development without security, no security without development**, we will not enjoy either **without respect for human rights**.
- In **Millennium Declaration**, Member States stated to promote democracy, rule of law, respect for human rights and fundamental freedoms. They recognized that freedom from want and fear are essential but not enough.
- **All human beings have the right to be treated with dignity and respect.**
- **Promotion of universal values of rule of law, human rights & democracy are ends in themselves, essential for a world of justice, opportunity & stability. No security agenda & drive for development will be successful unless based on human dignity.**



7.6 Fourth Pillar of Human Security: Freedom From Hazard Impacts

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

7.7

Human Security Network Members

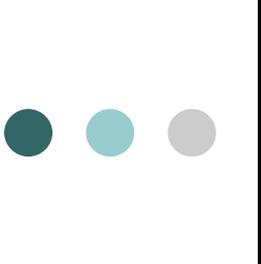
Volume IV, chapter 75 by Fuentes/Brauch

| NATO | EU | Third World |
|--------------------|--------------------|--|
| Canada | | Chile |
| Greece Slovenia | Austria Ireland | Costa Rica Jordan Mali Thailand |
| Norway | Switzerland | South Africa (observer) |

The Network has an interregional & multiple agenda perspective, strong links to civil society & academia.

The Network emerged from landmines campaign at a Ministerial, Norway, 1999. Conferences at Foreign Ministers level in Bergen, Norway (1999), in Lucerne, Switzerland (2000), Petra, Jordan (2001) **Santiago de Chile (2002)**, Graz (2003), Bamako, Mali (May 2004), Canada (2005), Thailand (2006), Slovenia (2007), Greece (2008); Ireland (2009), **Costa Rica (2010)**

Antipersonnel landmines, Intern. Criminal Court, protection of children in armed conflict, control of small arms & light weapons, fight against transnational organized crime, human development, human rights education, HIV/AIDS, implement. of international humanitarian & human rights law, conflict prevention and climate change & hazards



7.8 Human Security Network: 10th Ministerial Conference Athens (2008): focus on climate change

Climate Change and Developing Countries

- Developing and Least Developed Countries, will pay heaviest toll due to dependence on agriculture and limited capacity to deal with natural disasters,

Climate Change and Women

- Climate change will disproportionately affect lives of poor women in developing world who suffer from limited access to basic goods and rights.
- Women are most vulnerable since they have to protect themselves and children.

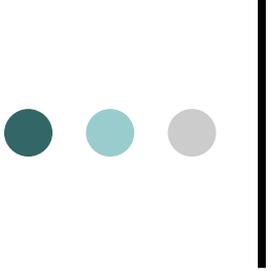
Climate Change and Children

- Children are physically more vulnerable to malnutrition, disease and hardships.
- In developing countries, with few adequate warning systems or strategies to limit risk factors, children will be affected by natural disasters & extreme weather events.
- They will also be affected by disasters with long-term impact, such as desertification.

Climate Change and People on the Move

- The severe HS effects of climate change will be more acute for the population with high resource-dependency in environmentally & socially marginalized regions.
- Climate change induced migration may be one response, although climate change alone is unlikely to be the sole, or even the most important “push” factor to migrate.
- Large-scale movements of people may increase the risk of conflicts in host communities.

Greek Presidency: „HS requires freedom from fear, freedom from want, and, we should add, freedom from hazard impact due to anthropogenic reasons.“



7.9 Human Security Network: 11th Ministerial Conference Dublin (2009): focus on violence against women

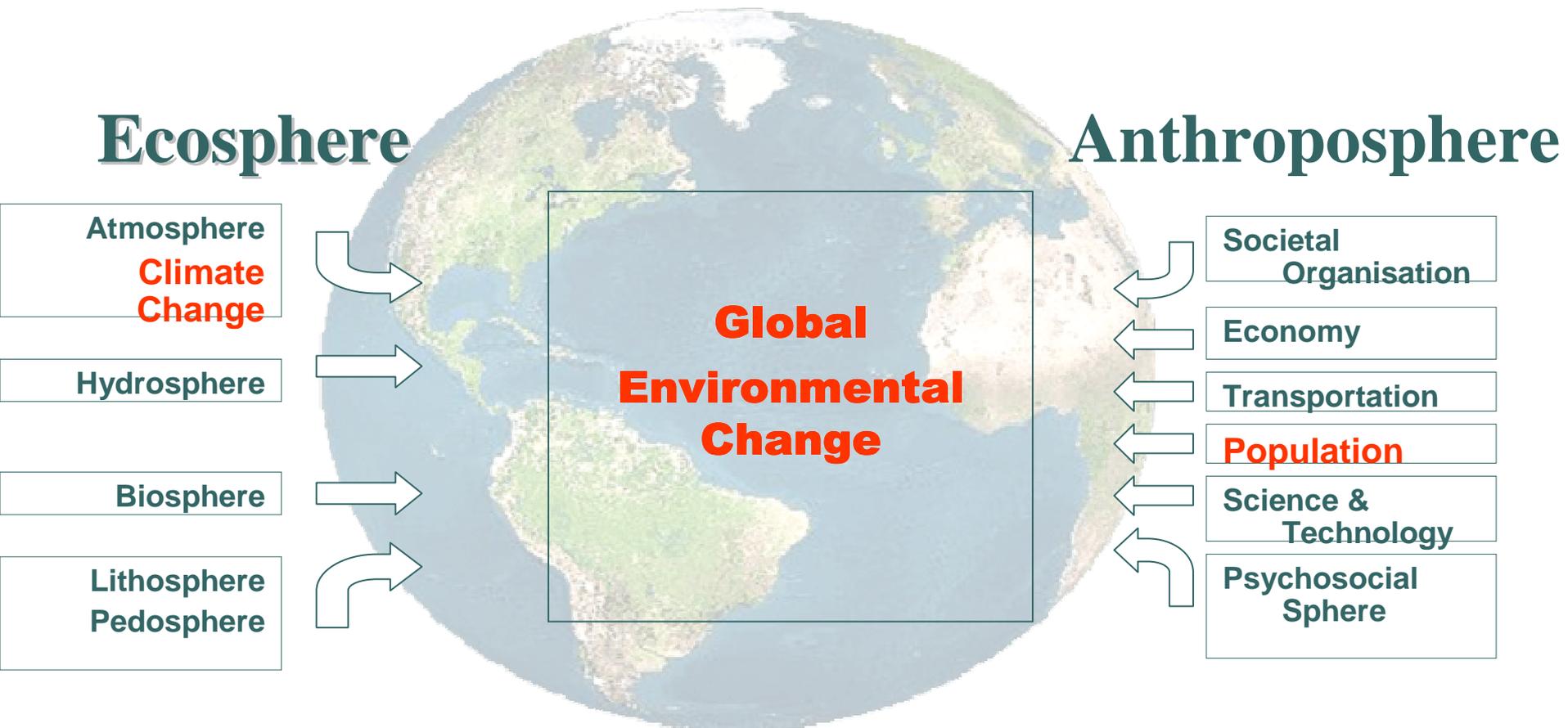
- On future activities, members agreed that the mechanism of joint positions should be preserved at various international forums, particularly in the UN, on current issues: protection of children affected by armed conflicts, human rights education, small arms, light weapons control, climate change effects on vulnerable groups, combating AIDS, trafficking in human beings, poverty.
- **Prior Conference on the role of women in peace-making.**
 - Protection of women in armed conflict, implementation of UN Security Council resolutions 1325 and 1820 on women, peace and security.
 - **Res. 1325 is first Security Council resolution (31 October 2000)** to address on women in armed conflict from the human rights point of view. Women and girls are often considered as strategic targets, since violence against civilians, rape and sexual abuse are perceived as an effective means of combat in ethnic cleansing and other types of violence.
 - **Resolution 1820 (20 June 2008)** on women, peace & security defines sexual violence against civilians as a war crime.. The participants underlined the need for the comprehensive & effective implementation of both resolutions, highlighting the responsibility of all UN member states to implement these resolutions.



8. Global Climate Change and International, National & Human Security

- Since 1970/80s: '*global environmental change*' (GEC) a new topic in natural and social sciences
- Since late 1980s and 1990s policy efforts on:
 - **Climate Change**: 1988: issue of G7; 1990: UN GA mandate; 1992: Rio summit: **UNFCCC (1992)** and **Kyoto Protocol (1997)**
 - **Desertification**: **UNCCD (1994)**, **water (WWF, GWP, WWW)**
- Since 2000: both are considered as security issues
 - **Since 2002**: climate change seen as a security threat/risk
 - **Valencia: 2003**: NATO Conference: Desertification as a security issue in the Mediterranean
- **Since 2007: two debates on climate change & security**
 - **UN & EU Debates**: climate change and international security
 - **US debate on climate change**: new threats for US national security

8.1 Global Environmental Change (GEC)



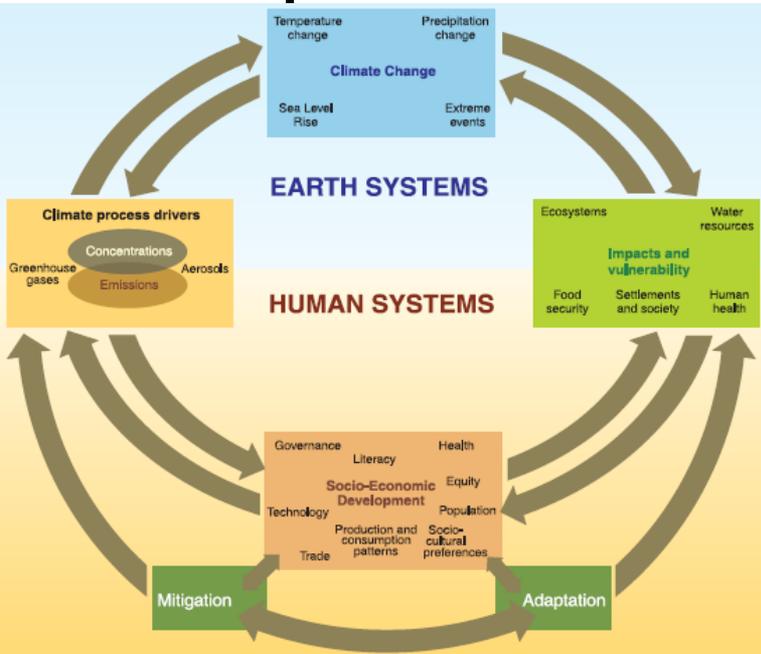
GEC poses threats, challenges, vulnerabilities and risks for international, national and human security and survival.

8.2 Four GEC Scientific Programmes

- **International Geosphere-Biosphere Programme (IGBP)**. research programme that studies Global Change
- **Goals:**
 - Analyze interactive physical, chemical and biological processes that define Earth System dynamics
 - changes occurring in these dynamics
 - role of human activities on changes
- **DIVERSITAS:** integrates biodiversity science for human well-being:
- By linking biology, ecology & social sciences, it produces socially relevant new knowledge to support sustainable use of biodiversity
- **International Human Dimensions Programme (IHDP):** international, interdisciplinary science organization: promoting, & coordinating research, capacity building & networking. Social science perspective on global change and works at the interface between science and practice
- **World Climate Research Programme** draws on climate-related systems, facilities & intellectual capabilities of 185 countries to advance understanding of processes that determine our climate.
- Two key objectives of **WCRP** are to determine predictability of climate; and effect of human activities on climate.

In 2001: Amsterdam Declaration on Global Change: IGBP, IHDP, DIVERSITAS, WCRP formed Earth System Science Partnership.

8.3 Addressing Linkages of Global Climate Change and Security



Four Schools

- Dramatizers: Climate wars
- Sceptics: lack of research (PRIO)
- **Empiricists: PEISOR Model & linkages**
- Trend & future scenarios

Two Approaches

○ Causal analysis

- Natural phenomena -> migration, crises, conflicts (violence)
 - 2nd phase: Homer-Dixon, Bächler
 - 4th phase: Oswald – Brauch - Dalby

○ Discourse analysis: climate change (chapter 4 of this volume)

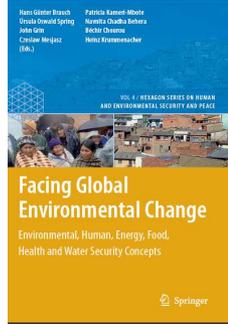
- International security
- National security
- Environmental security
- Human security

Objects of Security Analysis (Securitization)

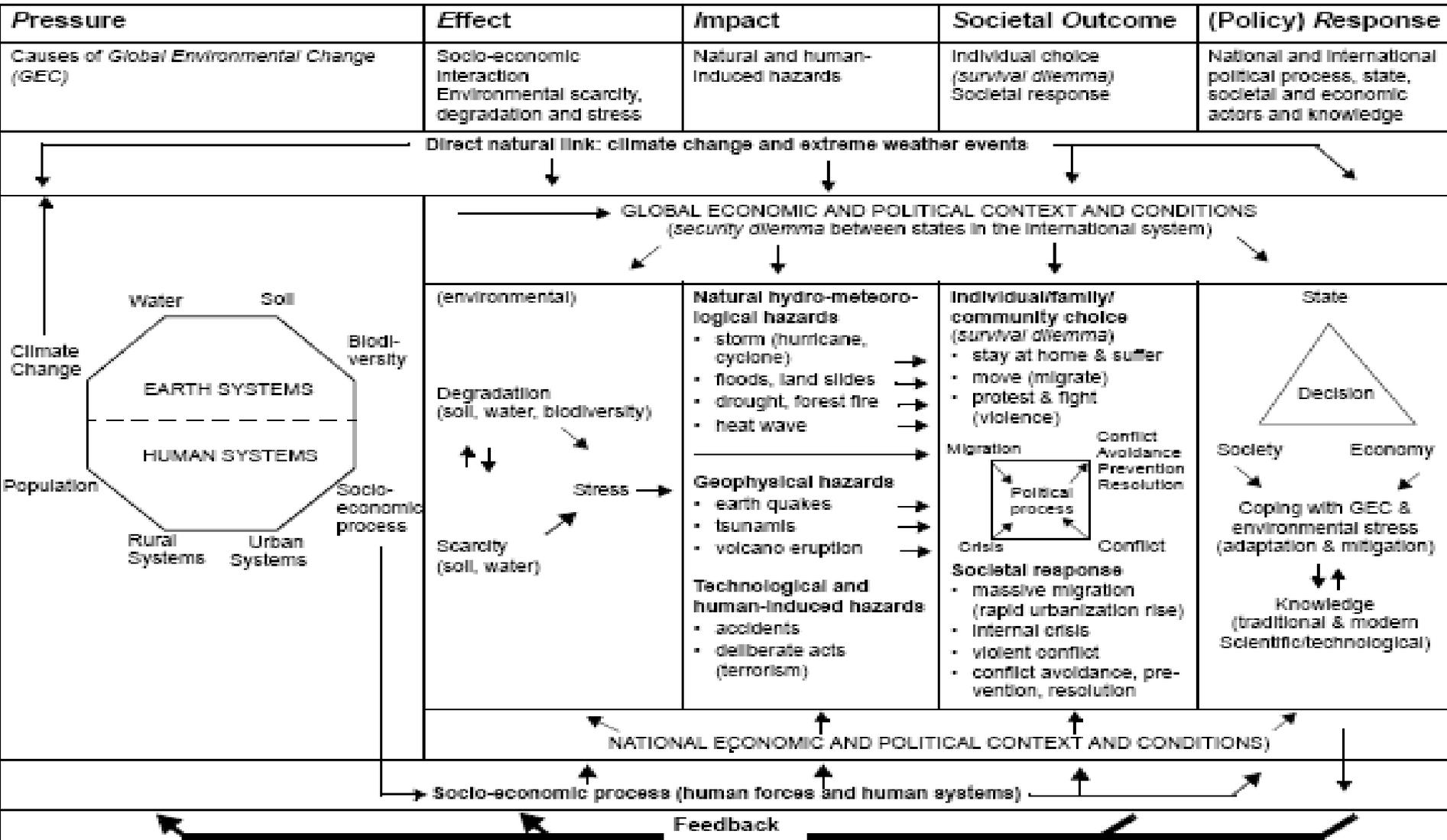
- Physical Effects: e.g. temp, rise
- Impacts: Sectors & Regions
- Societal Effects (migration, crises, conflicts)

Whether they pose:

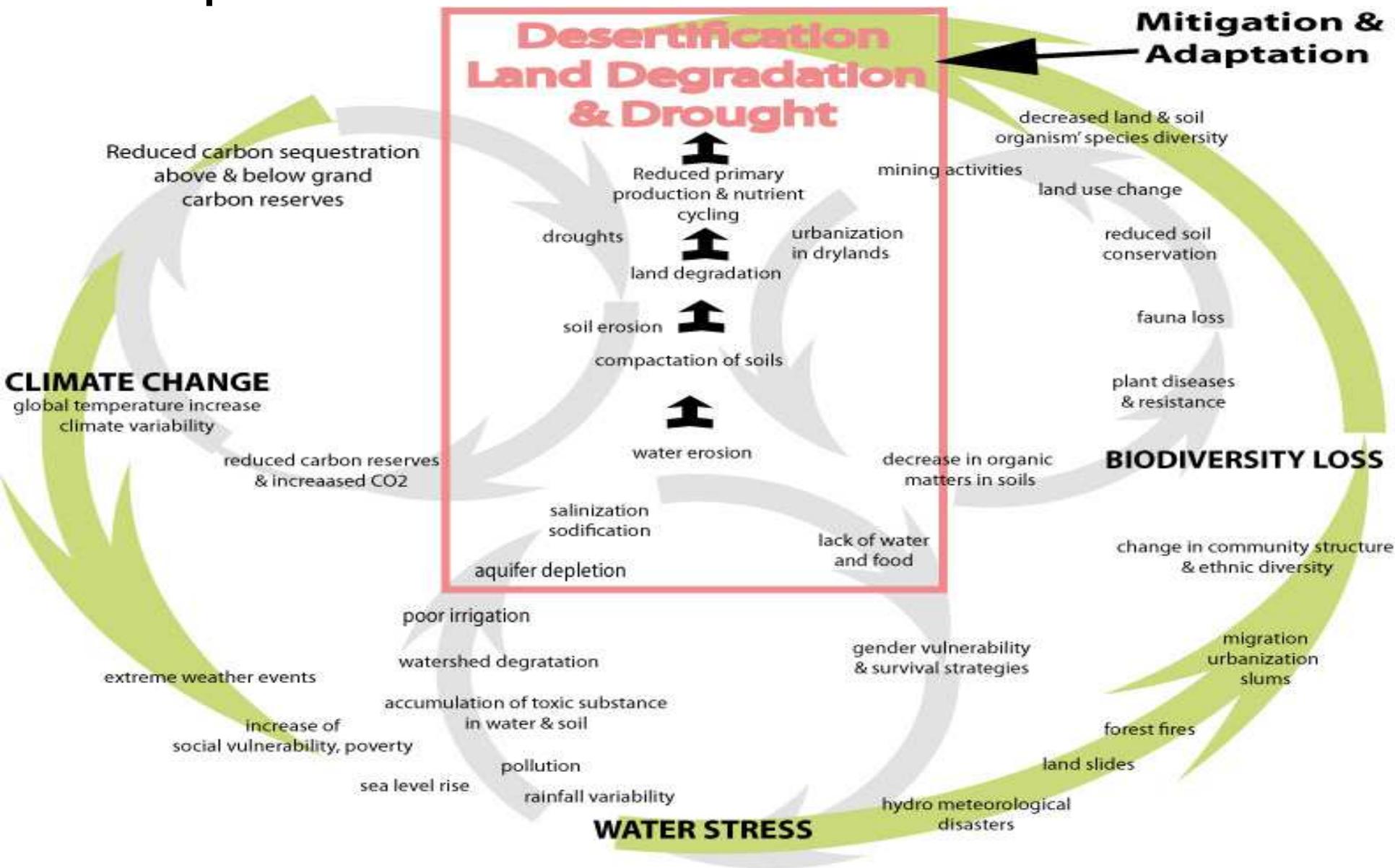
- **Objective Security Dangers**
- **Subjective Security Concerns**



8.4 Global Environmental Change & Impacts: PEISOR Model

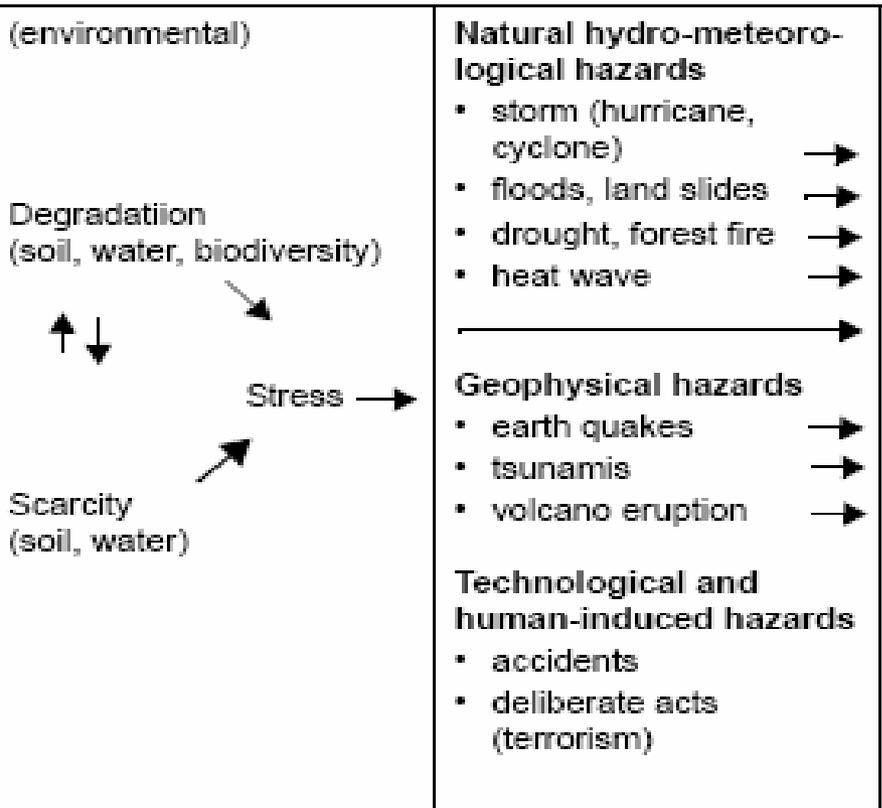


8.5 | P: Pressure: Interactions of GEC



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

Direct natural link: climate change and extreme weather

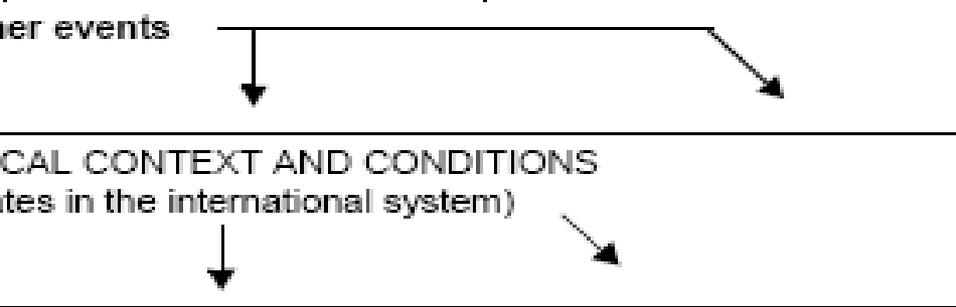


NATIONAL ECONOMIC AND POLITICAL

8.6 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)**
 - Heatwaves
 - Forest fires
 - Storms (hurricanes)
 - **Flash floods & landslides (wind & water erosion)**

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



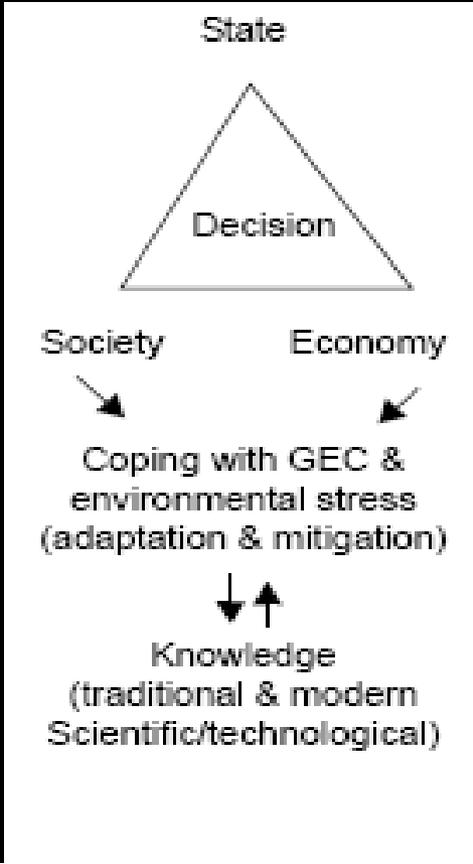
Individual/family/ community choice
(*survival dilemma*)

- stay at home & suffer
- move (migrate)
- protest & fight (violence)

Migration

Societal response

- massive migration (rapid urbanization rise)
- internal crisis
- violent conflict
- conflict avoidance, prevention, resolution

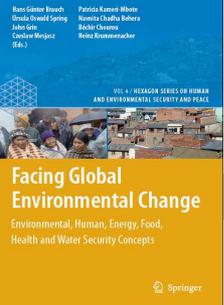


8.7 SO: Societal Outcomes

- 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**

8.8 R Policy Response to Security Dangers posed by Global Change: **Object**

- ● ●
- How? Responsive vs. proactive action
 - Response: cost of non-action (Stern Report)
 - Proactive: anticipatory knowledge, learning, action
- What? Addressing causes (**Pressure**)
 - Earth system: environmental quartett
 - Human: productive/consumptive behaviour
- Responding to **Effects & Impacts**
 - Environmental stress
 - Climate-related natural hazards
- Addressing **Societal Outcomes**: Migration/Conflicts

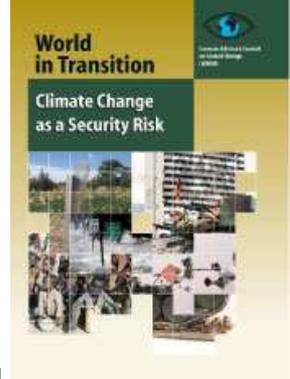


8.9 Chap. 4: Securitization of Global Environmental & Climate Change

- **Not they but „we are the threat“ of global warming**
- **Intersubjective approach: Security is what actors make of it**
 - **2007 was the turning point for the securitization of climate change**
 - February: IPCC Fourth Assessment Report
 - April: UN Security Council debate
 - June: WBGU-Report: impact on EU debate
 - October: Nobel peace prize for IPCC and al Gore
- **3 fold debate & discourse on climate change:**
 - **International Security:**
 - Goal: Strategies of conflict prevention by a proactive environmental, economic and development policy
 - **National Security:**
 - 2007: new military mission for US Department of Defense
 - **Human Security:** HS Network, Greek presidency (5/ 2008)
 - GECHS Project of IHDP: Social Vulnerability of poor & marginalized population groups

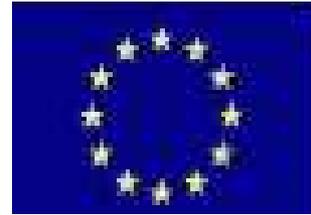


8.10 Discourse 1: Climate Change & International Security



- **BMU-Report 2002: Climate Change and Conflicts**
 - Goal: Agenda setting for IPCC
 - Coalition: Germany, Great Britain, Finland, Mexico
 - Focus: Small Island States, Bangladesh, Mexico, Egypt, MENA
 - OECD-Case studies: Bangladesh, Egypt, Tansania, Nepal, Fiji
- **WBGU-Report 2007-8: Security Risk Climate Change**
 - State-centred security concept
 - physical effects of GCC may trigger 4 conflict constellations:
 - Climate-induced degradation of drinking water
 - Climate-induced reduction of food production
 - Climate-induced increase of storm and floods, drought and famine
 - Climate-induced migration

8.11 EU Paper: Climate Change & International Security (3/2008)



- **Climate change ... as a threat multiplier of existing trends, tensions and Instability, that overburdens fragile and conflict prone states and regions**
- **Seven international security threats from climate change:**
 - 1) Resource conflicts (Water, soil, food);
 - 2) Economic damage and risks for coastal cities;
 - 3) Loss of territory and border conflicts;
 - 4) Environmentally-induced migration;
 - 5) Situations of fragility and radicalization
 - 6) Tensions on energy supply
 - 7) Pressure on international politics
- **Regions, where these threats become manifest**
 - Africa, Middle East, South Asia; Central Asia, Latin America, Arctic.
- **Central challenge: Environmental Migration**
- **December 2008: Implementation paper of ESS (2003)**
- **Roadmap Process: DG External Relations not DG Environment**



8.12 UN Debates on Climate Change and International Security

17 April 2007: UN Security Council: tabled by Ms.Beckett (UK)

- <http://www.un.org/News/Press/docs/2007/sc9000.doc.htm>
- <http://www.un.org/News/Press/docs/2007/sqsm10949.doc.htm>

3 June 2009: UN General Assembly Resolution:

- 1. *Invites* the relevant organs of the United Nations, as appropriate and within their respective mandates, to intensify their efforts in **considering and addressing** climate change, including its possible security implications;
- 2. *Requests* the Secretary-General to submit a **comprehensive report** to the General Assembly at its sixty-fourth session on the **possible security implications of climate change**, based on the views of the Member States and relevant regional and international organizations.

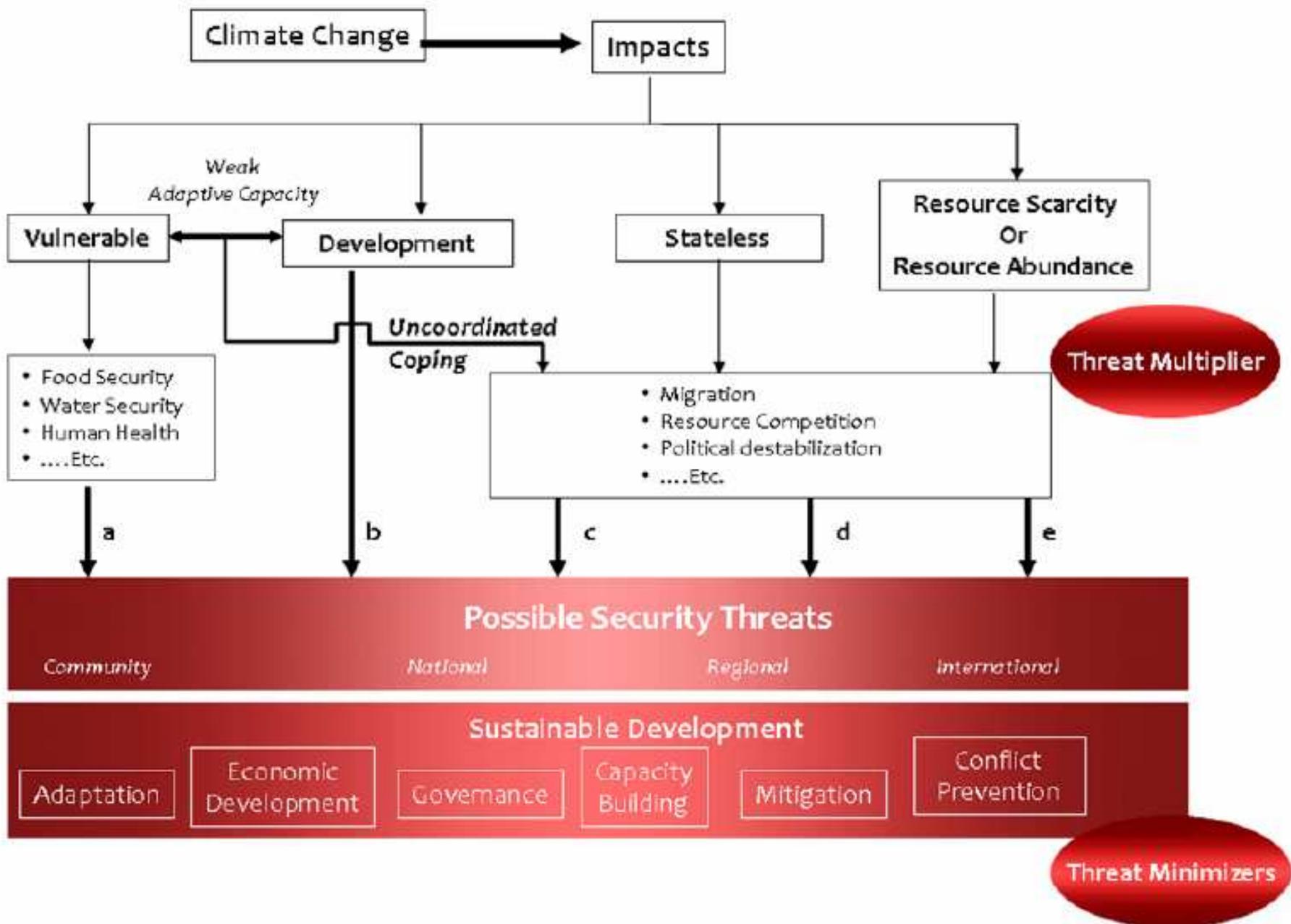
August-September 2009: submission by states (31 replies)

- http://www.un.org/esa/dsd/resources/res_docugaecos_64.shtml

11 September 2009: Report by Ban-Ki Moon

- http://www.un.org/ga/search/view_doc.asp?symbol=A/64/350

Threat multipliers and threat minimizers: the five channels



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

9. From Knowledge to Action

- Since 1989 a major reconceptualization of security has taken place globally due to contextual change.
- theory of securitization: global security mapping
- 1994: shift from (inter)national to human security.
- The human security concept is both a new analytical and a political concept that is widely used in policy declarations in the UN system.
- From reactive to proactive policies
 - Prevention of violent escalation of conflict potentials in the framework of specific conflict constellations

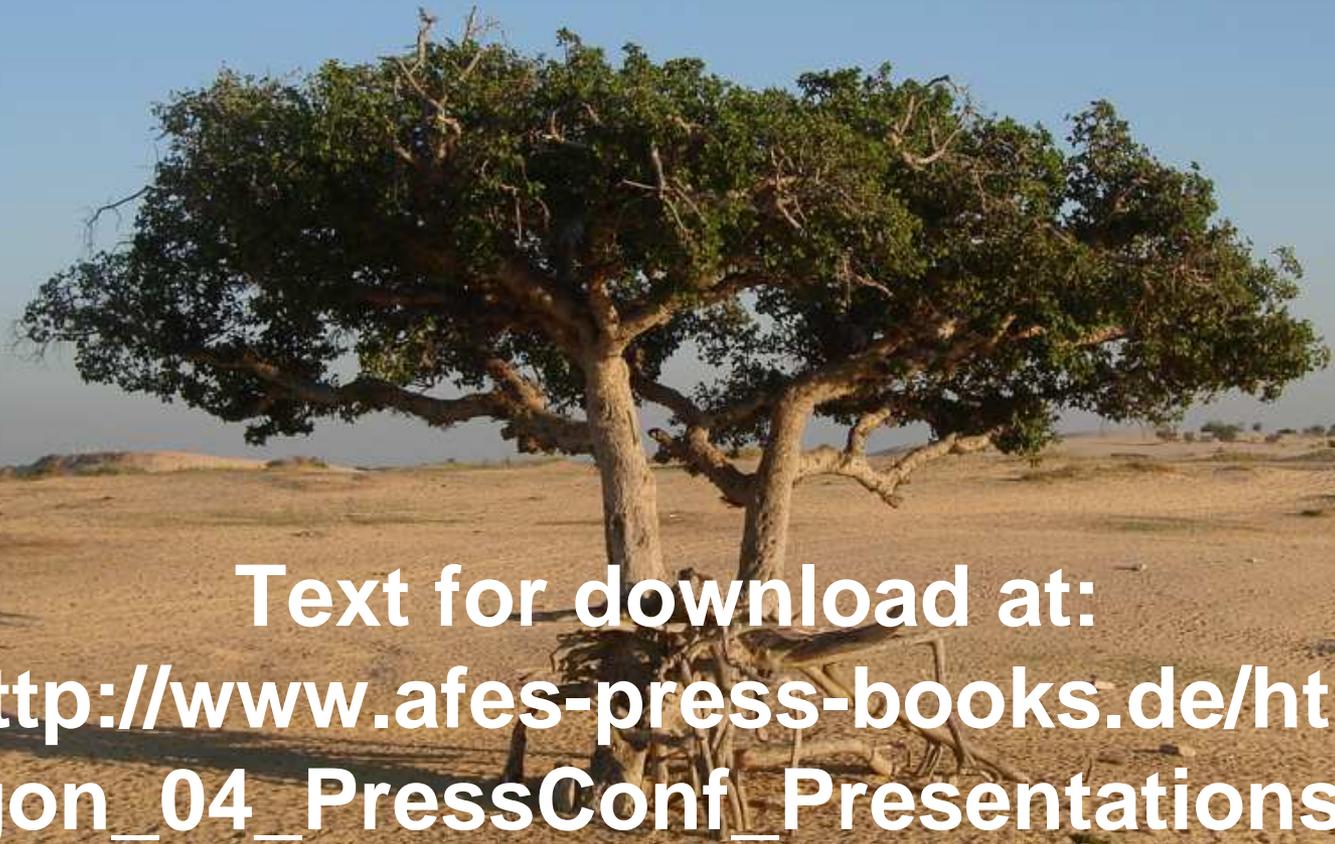
9.1 | **Security Policy in the Anthropocene: Towards a Sustainable Peace**

- **Fourth phase of environmental security research:**
 - Move from environmental scarcity, degradation and stress as cause of violence to GEC issues
 - Address the human dimension of environm. security
 - Reflect the HUGE impacts (gender sensitivity)
- **Towards a Policy of Sustainable Peace:**
 - Linkages between sustainable development & peace
- **Political Geoecology for the Anthropocene**
 - Earth systems science & geoecology lacks political dimens.
 - Geo: spatialization of the environmental dimension of IR
 - Ecology: linking natural science with human & social ecology

9.2 Policy Vision & Perspective: Towards Sustainable Peace & 4th Green Revolution

- **Goal of a stabilization of climate change at a 2°C increase in global average temperature by 2100:**
 - -50% global reduction of GHG, or -80% for OECD countries
 - Major transformation and decarbonization of the economy
- Combination of sustainable development strategy & peace policy: sustainable peace to prevent that GEC issues pose a threat to international peace.
- Fundamental economic transformation requires a demilitarization of environmental and human security issues.
- **Oswald Spring & Brauch suggest a fourth green revolution after agricultural, industrial, information revolution to cope with economic adaptation, mitigation and transformation.**

**Thank you
for your attention
and patience.**



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Contact: <brauch@onlinehome.de>**

Free Publications of UNU-EHS, UNCCD

at: <<http://www.ehs.unu.edu/category:16?menu=35>>

at: <http://www.unccd.int/knowledge/docs/didd_eng.pdf>



Environment and Human Security
Towards Freedom from Hazard Impacts
Hans Günter Brauch



Gender and Disasters
Human, Gender and Environmental Security:
A HUGE Challenge
Úrsula Oswald Spring



**Threats, Challenges, Vulnerabilities
and Risks in Environmental and Human Security**
Hans Günter Brauch

InterSeCTIONS
'Interdisciplinary Security Connections'
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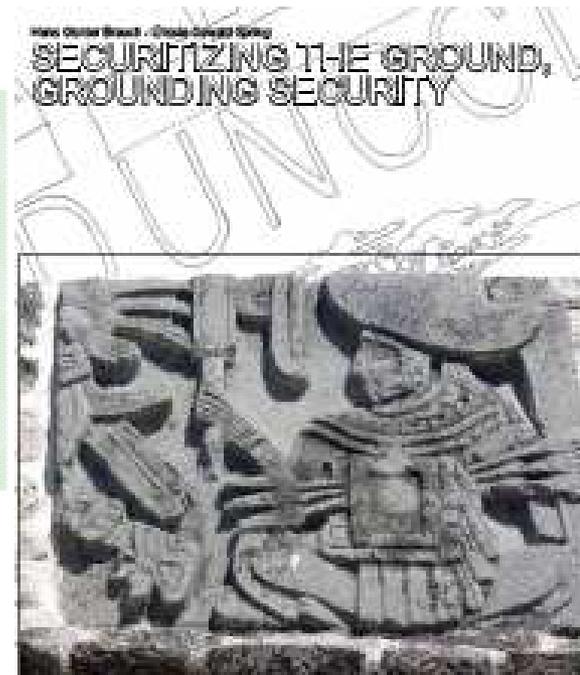
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UNCCD

United Nations Convention to Combat Desertification

