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Sustainability Transition and Sustainable Peace

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Seven Dimensions of 'Sustainability Transition': Temporal, Spatial, Scientific, Societal, Economic, Political, and Cultural

10.30-12:00: Panel 2:

Stainable Development and Sustainable Peace

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Contents

1. Introduction: Two discourses

- The parallel discourse on ‘sustainability transition’ addresses both the causes and impacts of GEC and GCC by facing & coping with both and avoiding the projected societal consequences of dangerous or catastrophic climate change and of possible tipping points in the climate system.
- From this perspective the goal of ‘sustainable development’ and the perspective on **‘sustainability transition’ refer to a much wider research agenda than the relatively narrow focus on environmental and technological innovations that is a primary focus of many researchers in the STRN.**
- The process of ‘transition’ refers to multiple long-term evolutionary and revolutionary transformative changes that point to five different historical times, with different transformative results
- These must be distinguished since they have different transformative results. We may address them with four hypotheses:

1.1. Four Hypotheses

- We are in the midst of a **global transition in earth history** from the '**Holocene', to the 'Anthropocene'** that began with human interventions into the **earth system** and that has resulted in a rapid increase in GHG emissions in the atmosphere.
- The **impacts of the grand transformations** of the first and second industrial revolution have resulted in a complex global environmental change and in anthropogenically-induced climate change, besides as well as the increasing destruction of the biodiversity. natural climatic variations. This has resulted in an exponentially growing accumulation of GHG in the atmosphere this has also affected almost all environmental services.
- The **societal impacts** of four physical effects of 'anthropogenic global climate change' and of biodiversity loss may result in **major international, national, and human security dangers**.
- **Since 2005 an alternative discourse on 'sustainability transi-tions' or on 'transitions to sustainable and resilient development' has begun to evolve**. It addresses new directions in the 'study of long-term transformative change' that also needs to focus on resilient societies.

2. Five Historical Times & Past Grand Transformations

The five historical times are:

a) **the *geological times* of earth history (transition from the Holocene to the Anthropocene)**

b) the *time of the so far three technical revolutions so far* or the great transformations of the

c) **the *time of changes in national and international order*** due to revolutions and the outcome of major wars, e.g. in modern times due to the American (1776), French (1789), Soviet (1917), and Chinese (1945–-49) revolutions and the international systems of orders of Vienna (1815), Versailles (1919), and Yalta and San Francisco (1945), and the new international disorder since the end of the Cold War (Brauch 2008);

d) **the *time of repeating economic* (business) cycles and *political cycles*** (duration of political presidencies or election periods of parliaments); and

e) **the *short time of major political, societal, or economic events*** that have only in rare cases (as structure- changing events) were been instrumental for in creating major changes in national and inter-national order.

2.1 Climate Change & Sustainability Transition

- The emerging scientific debate on ‘sustainability transition’ addresses the many scientific, societal, economic, political, and cultural needs to reduce GHG emissions.
- These cannot be achieved simply by legally binding *quantitative emission limitation and reduction obligations* (QELROs), as in the framework of the Kyoto Protocol (1997).
- These have so far failed to achieve their proclaimed stated aims during the past two decades because of a lack of political will and capability to implement these legal obligations and policy declarations.
- A continuation of the prevailing world view and ‘business-as-usual’ mindset may lead to ‘dangerous’ (+4□℃ world) or even ‘catastrophic’ (4-6°world) climate changes and major huma n catastrophes during this century if the global temperature should rises by 4-6□℃ above the pre-industrial average by end of the 21st century.

3. Goal of Sustainability & Past 25 Years of Policy and Scientific Debates on Sustainable Development

Political Concept of Sustainable Development (SD)

- Since the Brundtland Commission (1987) report, SD has become a key concept that has since guided both policy and scientific debates. It defined sustainable development as a form of development that
- **“meets the needs of the present without compromising the ability of future generations to meet their own needs”.**
- **SD** comprises two other concepts of “‘needs’, **“in particular the essential needs of the world’s poor, to which overriding priority should be given; & the idea of limitations imposed by the state of technology & social organization on the environment’s ability to meet present & future needs”.**
- For Brundtland Commission, **“SD is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations”.**

3.1 Scientific Debates on Sustainable Development and on Sustainability

- **Today an ambiguous, disputed & essentially contested concept**
- IUCN–World Conservation Union, in a report on *Caring for the Earth* **(1980),** defined SD as "improving the **quality of human life** while living **within** the **carrying capacity** of **supporting ecosystems**", where sustainability is understood as "a characteristic of a **process that can be maintained indefinitely**"
- **Trzyna (1995)** SD: multidisciplinary, social process, moral principle
- **Neoclassical & ecological perspectives** differ in assessment of likelihood of sustainable outcomes from real/world market economies.
- **US National Research Council (NRC 1999)** on *Our Common Journey: A Transition toward Sustainability* tried to "reinvigorate the essential strategic connections between scientific research, technological development & societies' efforts to achieve environmentally sustainable improvements in human well-being" focus on: 1) common concerns and differing emphases on SD, 2) trends and transitions, 3) exploring the future, 4) environmental threats and opportunities, 5) on reporting on transition, and 6) integrating knowledge and action.
- **No study discussed the linkages between SD and ST and war, crises, conflict and world peace or sustainable peace.**

4. Emergence of the Scientific & Policy Debates on 'Sustainability Transition'

- Scientific discourse in natural sciences on **earth systems analysis (ESA)** or **earth systems science (ESS),** '**sustainability science' (SuS**) involving natural and social sciences, and on **ST**, primarily in the social sciences.
- **Policy debate** has addressed proposals for a **global green deal** and **green growth**, that are increasingly been being addressed by inter- and supranational organizations, such as the **UN, UNEP, OECD, and the EU.**
- **Since 2009**, ***Sustainability Transitions Research Network*** **(STRN)** has focused on "persistent sustainability problems in such sectors as **energy, transport, water and food" from the perspective of "various scientific communities" on the ways**
  - in which society could combine economic & social development with reduction of its pressure on the environment. A shared idea among these scholars is that due to the specific characteristics of the sustainability problems (ambiguous, complex) incremental change in prevailing systems will not suffice. There is a need for transformative change at the systems level, including major changes in production, consumption that were conceptualized as 'sustainability transitions
- **Routlege Series, vol. 1: „seek to understand transitions dynamics, and how and to what extent they may be influenced."** …The transition to sustainability has to compete with other developments, and it is uncertain which development will gain the upper hand. … The authors … closely address the need for transitions, as well as their dynamics and design. Thereby they concentrate on historical cases as well as on contemporary examples.

5. Temporal Dimension of Sustainability Transition

- As with the previous “great transformation” (Polanyi 1944) caused by the industrial revolution, the debate on ‘sustainability transition’ refers to another long-term but a far more comprehensive transformative change. With regard to the “policy implications of sustainability transitions”, Voß et al. (2009) pointed to a long- term orientation of policy frameworks and argued that
  - Sustainability transitions typically span over several decades and are therefore at odds with the usual spans of attention prevalent in political processes …
  - In order to support long-term structural shifts, policies have to interact with many transformative changes as they unfold. Long-term policy design thus needs to be flexible, adaptive and reflexive (Voß et al. 2009)

6. Spatial Dimension of Sustainability Transition

Within the evolving discourse on ST, proposal of a spatial dimension by Coenen, Benneworth & Truffer was more limited; they argued that

- an explicit analysis of the geography of transitions contributes to transition literature in various ways.
  - Firstly it provides a **contextualization and reflection on the limited territorial sensitivity** of existing transitions analysis. The majority of empirical studies have been conducted in a small number of countries, primarily the Netherlands, UK or Scandinavia, with an increasing interest in Asian countries.
  - Secondly, it explicitly acknowledges and **investigates a variety of transition pathways**.
  - Thirdly, it encompasses not only greater emphasis but also better conceptual & theoretical devices for understanding the **international, trans-local nature of transition dynamics**.

More recently, Coenen and Truffer (2012: 1) claimed that

- environmental innovations & sustainability related initiatives have received increasing attention in the recent **economic geography and regional studies** literature.
- In how far **sustainability concerns might also lead to fundamental transformations in technologies**, **industries and life styles** (so-called sustainability transitions) has however found much less resonance.
- **Sustainability transitions have been in the focus of scholars from the field of innovation studies.**
- **However, these approaches mostly disregarded spatial aspects of sustainability transitions until recently.**

7. Scientific Dimension of Sustainability Transition

- **Development of new scientific & technological knowledge is crucial for initiating processes for multiple transitions towards sustainability.**
- **1999: US National Academy of Science (NAS): in a report: Our Common Journey: A Transition Toward Sustainability noted that "many human needs will not be met, life-support systems will be dangerously degraded, and the number of hungry and poor will increase".**
- **The NAS also argued that "a successful transition toward sustainability is possible over the next two generations" but that this would require "significant advances in basic knowledge, in the social capacity and technological capabilities to utilize it, and in the political will to turn this knowledge to action" (NRC 1999: 160).**
- **Lourdes Arizpe was a coauthor**

7.1. Emerging Scientific ST Discourse

- **2001: Amsterdam conference** on Earth Systems Science (ESSP)
- 2004: Clark/Crutzen/Schellnhuber provided conceptual context for the **Dahlem Workshop on "Earth Systems Science and Sustainability" (2003),** where they pointed to "the need for harnessing science and technology in support of efforts to achieve the goal of environmentally sustainable human development in the Anthropocene"
- **2005: KSI started** to work on Sustainability transition (John Grin, co-chair)
- **2009:Amsterdam Conference on Sustainability** Transition resulted in Sustainability Transition Research Network (STRN)
- **2010: Routledge Series on Sustainability Transitions** was launched
- **2011: Elsevier: Environmental Innovation and Sustainability Transition**
- **2011: Oswald Spring/Brauch: Fourth Sustainability Revolution (FSR)**
- **2011: Brauch/Dalby/Oswald Spring: A Political Geoecology for the Anthropocene**
- **2001: WBGU. Report: A Social Contract for Sustainability (Dropbox)**
  - We are currently witnessing the emergence of a new scientific paradigm that is driven by unprecedented planetary-scale challenges, operationalized by transdisciplinary centennium-scale agendas, and delivered by multiple-scale co-production based on a new contract between science and society.

8. Societal Dimension of Sustainability Transition

- **Political, economic, and societal strategies for 'sustainability transition'** cannot be implemented against **the wishes, values, and preferences of the people concerned**. Such a long-term and global transformative change requires not only **'hard' changes in the systems of production, energy, and transportation**, as well as in human settlements and habitats, but also many '**soft' changes in human values, belief systems, world views, and mindsets**.
- The societal dimension of the scientific discourse on sustainability transition has so far focused on the **changes needed in human values, perception, and behaviour** that will result in **new lifestyles, ways of life, and patterns of consumption**. These goals have been promoted by leading scientists, by certain policymakers, and by religious and social movements such as the simplicity movements that call for a simple lifestyle with no negative effects on nature.

8.1 Societal Dimension of ST

- **WBGU (2011: 67)** argued "the necessary transformation into a low-carbon society already corresponds to some of the prevalent attitudes and value systems in many of the world's countries ... Secondly, the transformation can be viewed as a **positive factor in the sense of increasing subjective life satisfaction for large parts of the population**". WBGU noted
  - terms **'values', 'attitudes' and 'opinions**' have different meanings in psychology, sociology and political sciences (see Häcker/Stapf 1994). For the most part, it is assumed that attitudes are based on values, and that these attitudes influence people's behavior, even if research (Eckes/Six 1994) assumes that there is no particularly close connection between attitudes and behavior. In this report, the WBGU uses these terms as follows:
  - **1. Personal and cultural values:** Cultural values refer to something that has evolved socio-culturally, something that exists independent of individuals. Personal values, refer to the subjective concepts of desire and specific value orientation. Personal values describe the individuals' relatively stable preferences with regard to different values.
  - **2. Attitudes:** Contrary to the rather abstract 'values' and 'value systems', attitudes relate to certain objects, people (groups), ideas and ideologies, or specific situations (Häcker/Stapf 1994). Attitudes represent evaluation and action tendencies with regard to attitude objects, and are usually stable in the medium-term. They are therefore neither long-term value systems, nor short-term intentions.
  - **3. Opinions:** Are generally considered as verbalization of attitudes and values.

8.2 From Value to Behavioural Change

- For a **behavioural change towards a sustainability transition**, a temporal change in **public preferences and attitudes is insufficient**. A fundamental change in **human behaviour** is needed that will lead to major changes in **lifestyles and in preferences and patterns of consumption that will result in a lower ecological footprint** and in a reduction of individual carbon emissions.
- However, this **cannot be achieved by changes only on the demand side**; it also requires a **major change on the supply side** with regard to **green and renewable energy systems, public and low carbon transport systems, and products with a much lower carbon footprint.**
- **New social movements and political parties** may contribute to creating both awareness of and positive political frameworks for a change in the lifestyles and preferred way of life for a majority of the people.
- **Changing the 'soft' human & societal side of 'sustainability transition' may be as difficult if not more difficult than changing socio-technological framework on which most of the research has so far focused.**
- While new **scientific results & new publicly shared knowledge does not change values, attitudes, preferences, and behaviour**,
- changes of soft factors require **simultaneous changes in hard factors of economic system, in processes of production. consumption, & policy process.**

9. Economic Dimension of ST

- **Energy sector: 2/3 of GHG emissions, changes in land use (deforestation & agriculture): 1/4 of GHG emissions.**

WBGU (2011: 109) has argued that:

- Fundamental **changes in the technological development paths of all countries are necessary** in order to provide the chance of achieving elemental development goals like access to food, clean water, basic health care, or poverty reduction, to the 50% of the population so far denied this chance, whilst remaining within the planetary boundaries. …
- Central elements of the transformation into a sustainable and **climate-friendly society are the comprehensive decarbonization of the energy system**, as well as significant **energy efficiency improvements**, particularly **in end-use efficiency**.
- The **determined realization of a climate compatible development path** is possible. … These include … **facilitating economic development through universal access to safe and modern energy, improving long-term supply security, and a de-escalation of international conflicts with regard to energy resources**, positive effects on employment in structurally weak regions, and the reduction of many of the current systems' negative effects on the environment …
- **Building the transformation-relevant technology and infrastructure requires substantial investments, and the development of new financing concepts and business models for energy services.** In the long run … these initial investments will be more than compensated by … **reduced fuel and security costs, less damage to the environment, and avoidance of costs associated with adapting to climate change, and with the consequences of climate change** (WBGU 2011: 109).

9.1 IPCC SRREN Report (2011)

- According to the IPCC's (2011) **Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN)** and the WBGU's (2011: 119) assessment, "**the sustainable potential of renewable energies is fundamentally sufficient to provide the world with energy".**
- **According to IPCC's Summary for Policymakers (2011: 15):**
  - **"There are multiple pathways for increasing the shares of RE across all end-use sectors."**
  - **This applies specifically to the transport, building, and agricultural sectors and requires long-term integration efforts including investment in enabling infrastructure; modification of institutional and governance frameworks; attention to social aspects, markets and planning; and capacity building in anticipation of RE growth.**
  - Furthermore, integration of less mature technologies, including biofuels produced through new processes (also called advanced biofuels or next-generation biofuels), **fuels generated from solar energy, solar cooling, ocean energy technologies, fuel cells and electric vehicles, will require continuing investments in research, development and demonstration (RD&D), capacity building and other supporting measures.**

10. Political Dimension of ST

- **Political dimension of 'ST' was extensively discussed & many approaches, analysis, & proposals were made**
- **Grin (2010: 223)** suggested that the transition to sustainable development can **no longer rely on centralized government institutions of political administrative steering**, given the "more prominent role of the interactions between the state, market, and society".
- **Grin argued that a governance perspective "allows us to consider transition management, strategic niche management and interrelated processes in the real world", for three reasons:**
  - First, it contributes to the *historical contextualization of the transition* towards a sustainable society in late modernity. …
  - Second, a **governance perspective emphasizes not only the nature of transitions** as profound changes in both established patterns of action and the structure in which they are embedded, but also how these changes in practices and structure in a particular domain are influenced by long-term, societal trends exogenous to that domain. …
  - **Transforming established patterns of action and their structural context is bound to run into resistance and inertia.** … This suggests a third positive feature of a governance perspective: it pays attention to dealing with the politics intrinsic to transitions and systems innovation.

10.1. Political Dimension of ST

- **Focusing primarily on structural change in innovative systems, Coenen & Truffer (2012: 6) argued in ST research**
- **explorative scenarios, experimentation and learning … constitute important elements in specific policy programs**.
- reflexive policy framework that built on work of **Constructive Technology Assessment** has become known as **Strategic Niche Management.** …
- Other contributions have worked **out foresight based scenario methods** to identify **potential development trajectories for entire countries, sectors, technological fields or firm level strategic planning processes**
- A more encompassing policy framework has later been developed in the Netherlands as **Transition Management**, … comprises five main elements:
  - (1) Establishing a **transition arena** (i.e. a broad constituency of representatives from industry, politics, and society that accompany the ongoing planning and implementation process),
  - (2) developing a **vision of a future sustainable sector structure**,
  - (3) identifying **pathways towards these future states** by means of backcasting methods,
  - (4) setting up **experiments for particularly interesting development options**
  - (5) **monitoring, evaluation and revisions**.

11. Cultural Dimension of ST

- While many studies on ST have focused on issues of technological innovation in relevant industrial sectors, especially on energy, and on governance aspects, the societal and cultural dimension has been less prominent.
- In the social and political sciences there has been an intensive debate on postmodern values and value changes and on the changers of attitudes and preferences towards sustainability .
- The WBGU used values as “a shared perception of something worth striving for”, where cultural values refer “to something that has evolved socio-culturally, something that exists independent of individuals”. It stated that “attitudes relate to certain objects, people (groups), ideas, and ideologies, or specific situations”.
- In contrast to short-term intentions and long-term value systems, attitudes “represent evaluations and action tendencies with regard to attitude objects, and are usually stable over the medium-term”, while opinions are understood as “verbalizations of attitudes and values”.

11.1. Studies on Cultural Dimension of ST

- The **WBGU** (2011: 77) argued, based on Leiserowitz et al. (2006), that there are **various barriers that prevent "value systems from impacting on behavior**, at both individual and social or structural level" and that a change in behaviour requires "a material and cognitive basis".
- A transition towards sustainability is structurally constrained by the **prevailing path dependence** and the extensive high-carbon infrastructure and its political and electoral influence on decision-makers in parliaments and in the executive sector.
- **Analysis of the so-called soft aspects of sustainability transition, e.g. of the constraints, obstacles, and barriers to changes in opinion, attitudes, value systems and behavior, requires the expertise of sociologists, social psychologists, and anthropologists, but it also needs political scientists who can analyse cognitive perceptual and evaluative barriers created by the established traditional world views of scientists and the mindsets of policymakers**

12. Addressing Obstacles to ST: Overcoming Old Mindsets & World Views

- Oswald Spring and Brauch (argued that in the Anthropocene humankind is confronted with opposite ideal-type visions:
  - Business-as-usual in a Hobbesian world where economic and strategic interests and behaviour prevail, leading to a major crisis for humankind in inter-state relations that will destroy the Earth as the habitat for humans and ecosystems and put the survival of the vulnerable at risk (see the ‘market first’ and ‘security first’ scenarios of UNEP 2007).
  - The need for a transformation of global cultural, environmental, economic (productive and consumptive patterns), and political (with regard to human and interstate) relations (see the ‘sustainability first’ scenario of UNEP 2007).

12.1 Alternative Visions & Strategies

- **Both visions refer to totally different strategies for coping with GEC:**
  - In the first vision of **business-as-usual,** Cornucopian perspectives predominate that suggest primarily market mechanisms, technical fixes, and the defence of economic, strategic and national interests by adaptation strategies that are in the interests of OECD countries.
  - In the alternative vision of a **comprehensive transformation, a sustainable perspective** has to be implemented and developed into effective new strategies and policies with different goals and using different means, based on global equity and social justice.

12.2. Consequences of Both Visions

- The consequences of both opposing scientific visions and the competing policy perspectives are:
  - **The vision of business-as-usual** with minimal reactive adaptation and mitigation strategies will most likely increase the probability of a '**dangerous climate change' or catastrophic GEC** with both linear and chaotic changes in the climate system and their sociopolitical consequences. This represents a high-risk approach.
  - To avoid these consequences the **alternative vision and sustainability perspective requires a change in culture (thinking on the human-nature interface), world views (thinking on systems of rule, e.g. democracy vs. autocracy, and on domestic priorities and policies, as well as on interstate relations in the world), mindsets** (strategic perspectives of policymakers), and **new forms of national and global governance.**

12.3 Alternative Vision

- This alternative vision refers to the need for a "**new paradigm for global sustainability"** and for a **"transition to [a] much more sustainable global society" aimed at peace, freedom, material well-being, and environmental health**.
- **Changes in technology and management systems** alone will not be sufficient, but "**significant changes in governance, institutions and value systems**" are needed, resulting in a fourth major transformation following "the stone age, early civilization and the modern era".
- These **alternative strategies should be "more integrated, more long-term in outlook, more attuned to the natural dynamics of the Earth System and more visionary".**
- These many changes suggested by natural scientists require a '**Fourth Sustainability Revolution**'.

12.4. Three Obstacles

Results of Business as Usual: The Climate Paradox

- I argue that Canada, USA, Japan and rapidly industrializing threshold countries (G-20), who account for more than eighty per cent of GHG emissions, have faced a climate paradox due to their inability or lack of political will to implement their legal commitments or policy declarations. However, the different performance of the climate laggards and the of new climate change leaders show that it is not the 'system of rule') but rather the different political cultures in Europe and in North America that have influenced different policy performance.

Neo-Malthusian Dead End: Securitization to Militarization

- Hobbesian pessimists, concerned about the national security implications of global environmental and climate change that are being interpreted by the dominant realist policy mindset, have used this argument to adjust their force structure and military means to be able to cope with these major challenges. From this, primarily US-focused, national security perspective on climate change, the securitization of the impacts of climate change as a force multiplier may result in militarization.

The Cornucopian Dead End of Geo-engineering

- From the opposite 'Cornucopian' perspective, the solution to the challenges posed by global environmental and climate change may be technical fixes that have been offered by those who call for macro-scale projects of geo-engineering.

12.5 Towards a Sustainable Transition with Sustainable Peace

- The prevailing **policy mindset** that favoured policy solutions based on ‘business as usual” resulted in a **climate paradox** and in a comprehensive paralysis of global multilateral environmental governance, at Copenhagen (2009), Cancun (2010), Durban (2012), and in Rio de Janeiro (2012).
- The **narrow neo-Malthusian national security perspective** on the security implications of climate change may result in **militarization**, while the **Cornucopian perspective believes that market mechanisms & technical fixes could cope with the impacts of anthropogenic climate change**.

Thank you

for your attention!

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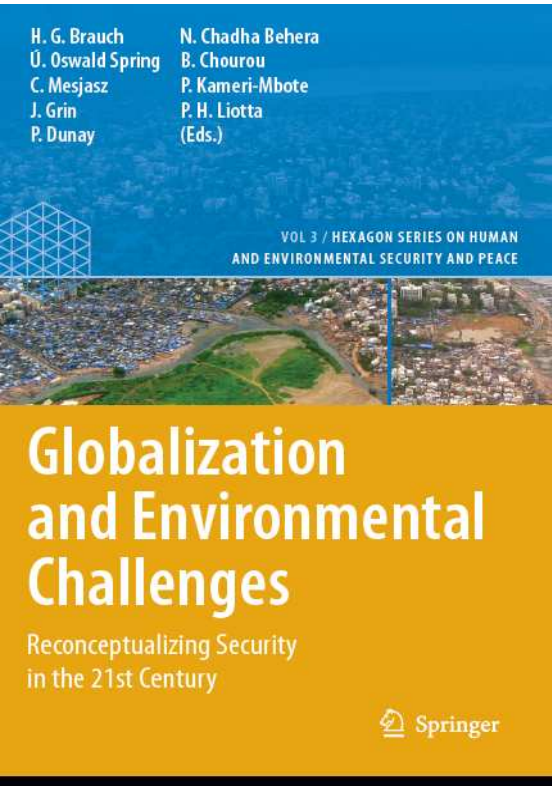

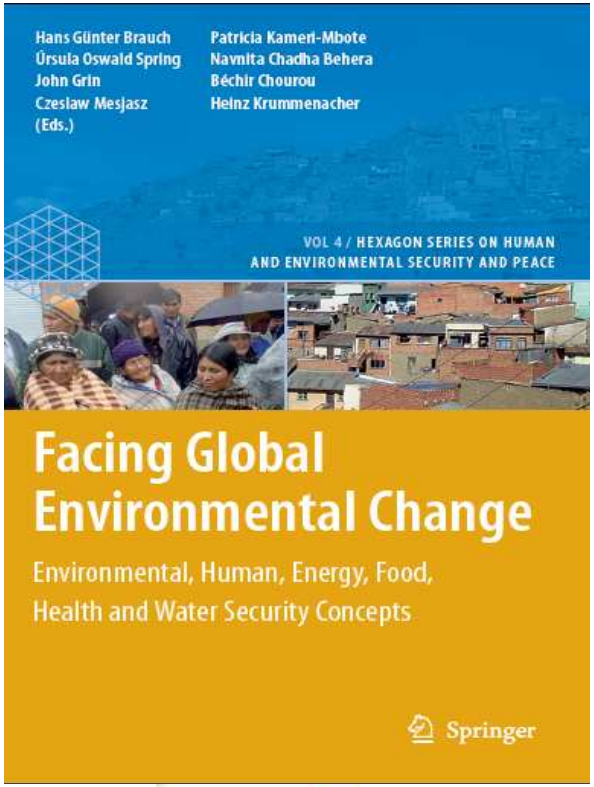

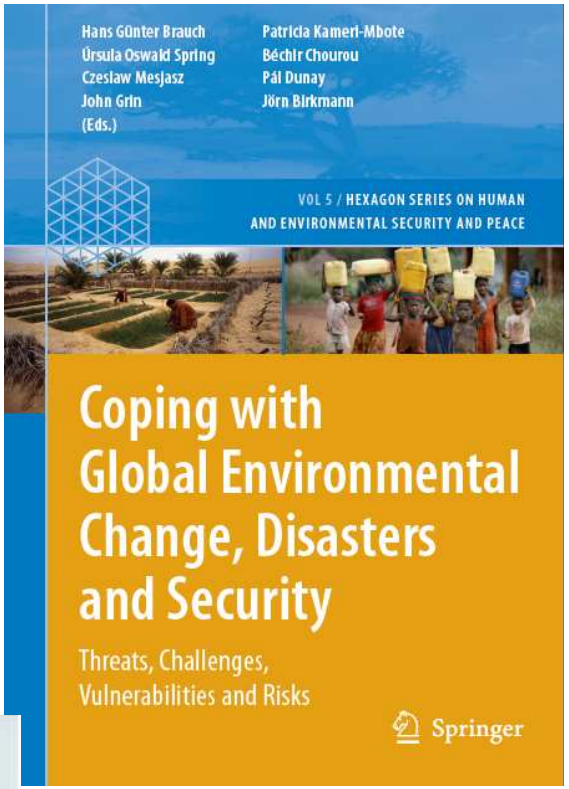

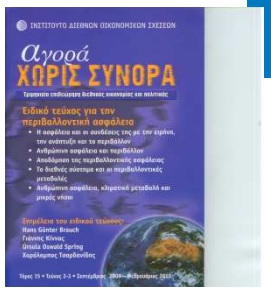

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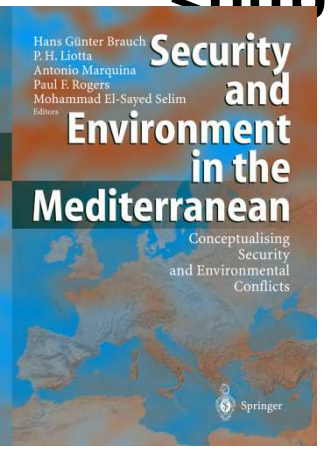

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