Lecture on
Sustainability Transitions and Sustainable Peace as Transformative Science

Hans Günter Brauch

Adj. Prof. (PD), Free University Berlin, Otto-Suhr-Institute (Ret.)

Chair, Peace Research and European Security Studies (AFES-PRESS)

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

Editor, The Anthropocene: Politik, Economics, Society, Science (APESS)

Editor, SpringerBriefs in Environment, Security, Development and Peace (ESDP)

Editor, SpringerBriefs series on Pioneers in Science & Practice (PSP)

Editor, Pioneers in Arts, Humanities, Science, Engineering, practice (PAHSEP)

Abstract

We had a silent transition in earth history: We are in the Anthopocene

Three components: Peace research, Peace Ecology, Transformative Science,

- Peace research should shift from disciplinary, multi-, inter-, and transdisciplinary research towards a transformative approach to anticipatory science and knowledge creation.
- Transformative science is to contribute to anticipative learning for proactive political strategies, policies and measures to avoid self-destroying prophecies.
- Peace ecology (PE) aims at a 'widening' of sustainability transition research by overcoming overspecialization of science and linking the diagnosis of *global environmental change* (GEC) research with alternative scenarios and visions on development pathways to avoid 'dangerous climate change' and societal 'tipping points' with unpredictable geopolitical impacts for peace and security.

Key research questions are:

- What are possible conceptual links between 'sustainability transition' and 'sustainable peace'?
- Will a transformative process towards sustainability contribute to a more peaceful world? How could critical tipping points in the Earth and human systems be avoided?
- May *business-as-usual* policies threaten the survival of millions of people and pose serious threats to international peace and security?
- May anticipative learning and a discourse on necessary long-term transformative changes contribute to sustainable development and proactively address new dangers to peace and security?
- Which policy lessons can be drawn from the violent consequences of the industrial and third technical revolution for a long-term transformative change towards sustainable development?
- This peace ecology perspective is inspired by both conceptual theory and a qualitative, conceptually-guided, prognostic approach and a 'conceptual thought experiment' linking different themes (sustainability transition [ST], Sustainable Peace [SP]) and research programmes (ecology, peace studies).
- The paper reviews impacts of the 'silent transition' from the Holocene to the Anthropocene for a new 'Copernican revolution to sustainability' with an alternative worldview.

Abstract (2)

- The paper offers a holistic approach to transformative science linking a policy process (ST) with a normative goal (SP), presents a new model linking the diagnosis of GEC research with alternative strategic policies and visions towards sustainable development and sustainable peace based on a new *Handbook on Sustainability Transition and Sustainable Peace* and explores possible scientific approaches for a transformative approach to *sustainability transition* and *sustainable pace* taking possible impacts of strategies of sustainability transition for security and peace and geopolitical scenarios aiming at 'peace with nature' or 'sustainable peace' into account as part of a heuristic thought experiment.
- However, while (populations, GHG emissions) trends can be projected based on model assumptions, the probability of scenarios cannot be forecast and political decisions and events determining the outcomes of alternative strategies and policies cannot be foreseen.
- As a new perspective linking peace studies and ecology research, a 'peace ecology' approach needs to be developed from an 'action-' and 'change-' oriented perspective embedded in the developments of a transformative science. A peace ecology perspective is to contribute *conceptually* to a sharpening of the normative 'sustainable peace' concept and *politically* to strategies of a 'transition' to sustainable development that may result in a peaceful transformation of the processes of production, consumption and towards alternative lifestyles in the Anthropocene era of earth and human history.

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10.

1. A Major Silent Transition: We are now in the Anthropocene!

- **We have all different times: Buddhists, Christians and Muslims related to the founders of our religions**
- **At the last sessions of the *Ecology and Peace Commission* (EPC) of *International Peace Research Association* (IPRA),Istanbul (2014) I addressed: Historical Times & Turning Points: 1914,1945,1989,2014?**

Six different types of time according to their duration:

1. ***Cosmic time*** (*physical cosmology* (M. Planck) refers to time since Big Bang ca. 13.8 billion years ago;
2. ***Geological time*** describes the timing of & relationships between events throughout the earth's history of about 4.54 billion years; its scales are adopted by geologists & earth scientists & defined ***International Commission on Stratigraphy***. Its most recent accepted epoch is the ***Holocene***, the period some 12,000 years ago that made the rise of human civilizations possible.

In August 2016 **Int. Geological Conference accepted a report in Capetown of the AWG on a new phase of the Anthropocene.** In claiming that "**we are in the Anthropocene**", **Nobel Laureate Crutzen** stated in Mexico that since the Industrial Revolution or 1945 (Nuclear Age) humankind has for the first time directly interfered in the earth system, triggering complex processes of global environmental (soil, water, biodiversity) and climate change.

1. The time of the ***technical revolutions*** (the '**Neolithic' or 'agricultural**' revolution of 10,000 to 6,000 BCE, and the '**Industrial Revolution**' from about 1750/1782 CE and its different phases of innovation).

In human history the French social historian **Fernand Braudel** in his masterpiece *The Mediterranean and the Mediterranean World in the Age of Philip II* (1946, 1969, 1972) distinguished between three historical times:

4. **long duration (*la longue durée*), I refer to eras of international order**

5. repeating **historical cycles (*histoire de conjuncture*), e.g. lifespan of a president or prime minister**

6**. events (*l'histoire événementielle*)**. Braudel's periodization is extensively used in history & social sciences. Other periodizations in economic history and theory (e.g. mercantilism, capitalism, socialism, neo-liberalism.

My thesis: We as humankind have for the first time intervened into earth history. We are all the common threat to our own survival. We must also be the solution. Science and education (& religion) is crucial for changing our lifestyles, economic performance by moving to a green economy (with a decarbonization)

1.1. A Context, Process, Goal, a Need, and an Audience

A silent revolutionary change in earth and human history

- Arrhenius (1896): hypothesis linking burning of hydrocarbons with CO2 accumulation in atmosphere, since 1970s: **scientization** of global & climate change
- **Politicization** (1988, 1992 (UNFCCC), 1997 (Kyoto P.), 2015 (Paris Agreement)
- Since 2000: **Securitization** of Climate Change

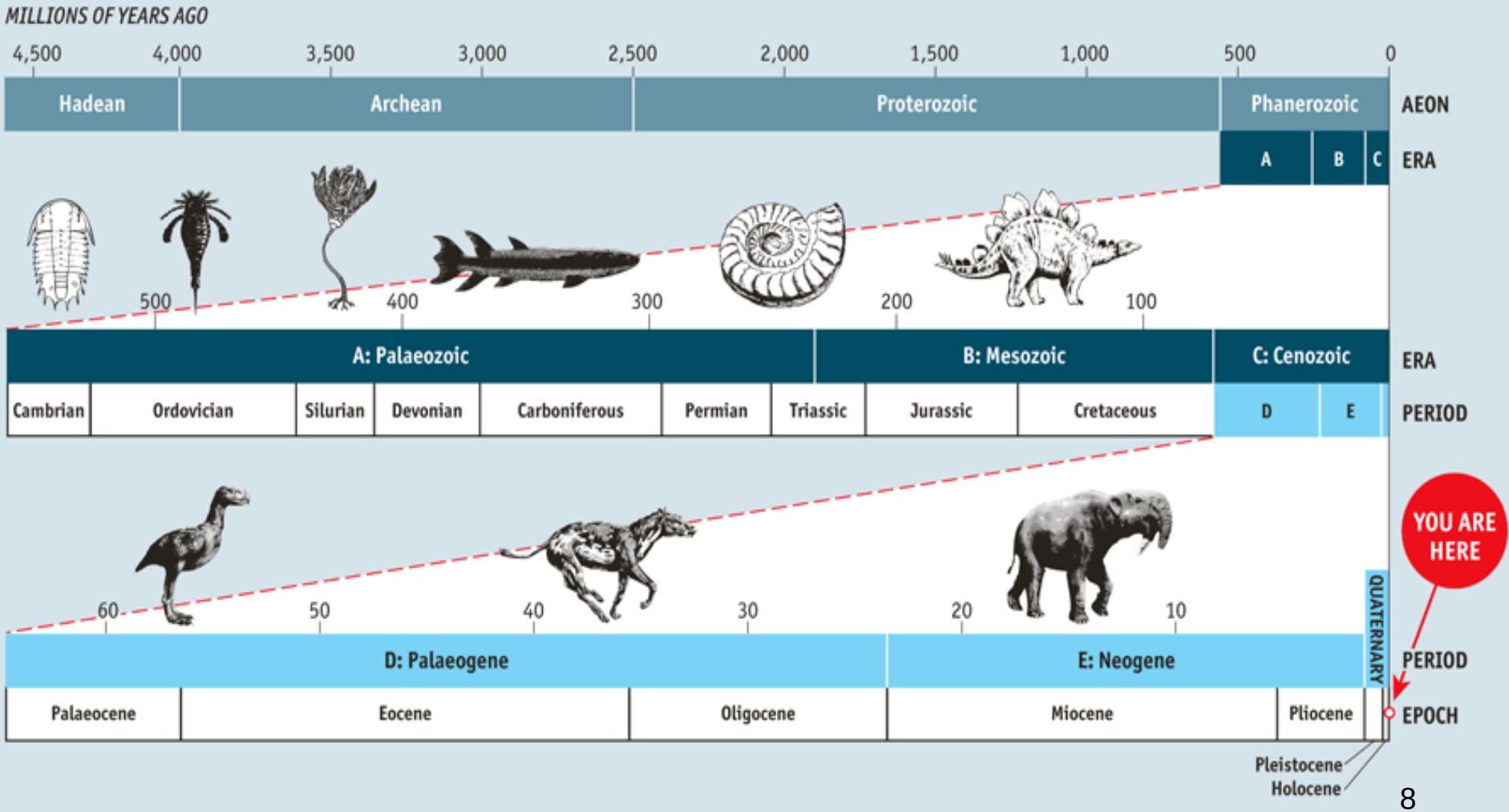
- **Context: We are in the Anthropocene! Paul J. Crutzen claimed in 2000 in Cuerna-vaca and in Capetown Int. Geological Conference accepted a report last week**
- **A Dual Political & Normative Goal:**
  - **Political: Sustainable Development (Brundtlandt Report 1987)**
  - **Normative: Sustainable Peace (alhimsa, peace with nature, peace as a goal of transition towards sustainability and a transformation requires a Global Mindshift**
- **A Dual Process:**
  - **STRN, IST 2016: Institutional Context: Sustainability Transition**
    - **Polanyi: Great Transition (1944) Göpel: Great Mindshift (2016)**
  - **Sustainable Peace: from a negative towards a positive peace (Johan Galtung)**
    - **Negative peace: transition without violent conflict and war: avoding resource and climate conflicts**
    - **Positive peace: transition towards a global presently utopian context of peace with nature**
- **A Dual Audience:**
  - **Narrow audience: Purely scientific community**
  - **Wider audience of Politik, Economics, Society and Science (4 pillars)**
- **Means to reach an Audience:**
  - **Scientific Journals: to scientists only (important for the career)**
  - **Scientific Books with one of the 3 largest scientific publishers**

1.2. AWG Report, Capetown 2016

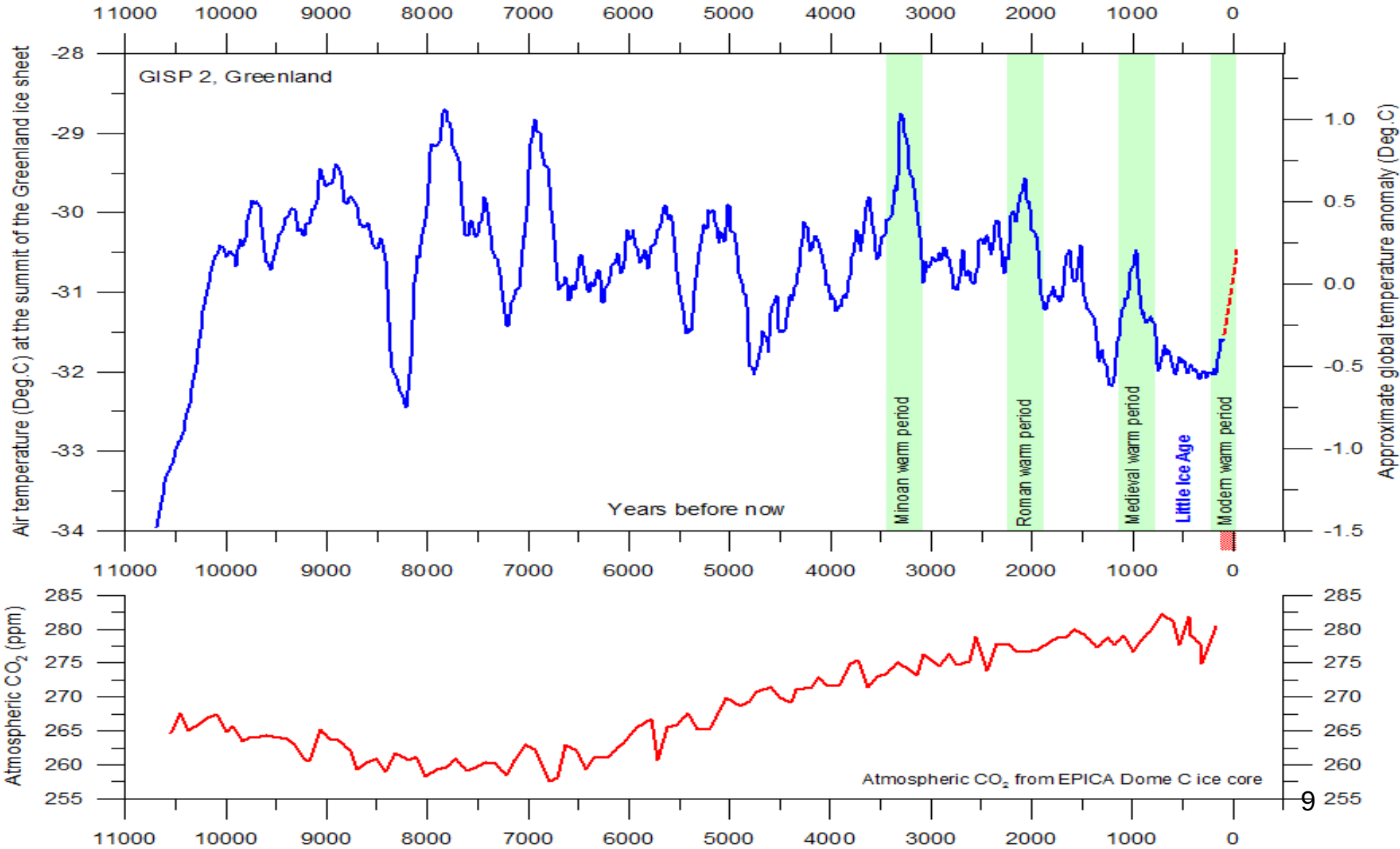
Majority current opinion on Anthropocene working group indicates the following:

- **The Anthropocene concept, as articulated by Paul Crutzen and Eugene Stoermer in 2000, is geologically real.** The phenomenon is of sufficient scale to be considered as part of the International Chronostratigraphic Chart, more commonly known as the Geological Time Scale.
- **Majority AWG opinion is for assignation as an Epoch/Series**. This option is preferred over either a lower rank (e.g. Age/Stage, i.e. as a subdivision of the Holocene) or a higher rank such as a Period or Era. In such a step, and in common with all other geological time units, the **Anthropocene would comprise both a 'pure time' unit (an Anthropocene Epoch)** and an equivalent unit of strata (an Anthropocene Series).
- **If the Anthropocene is adopted as an Epoch, this would mean that the Holocene has terminated**, but that we remain in the Quaternary Period
- **Human impact has left discernible traces on the stratigraphic record for thousands of years – indeed, since before the beginning of the Holocene. However, substantial and approximately globally synchronous changes to the Earth System most clearly intensified in the 'Great Acceleration of the mid-20th century. The mid-20th century also coincides with the clearest and most distinctive array of signals imprinted upon recently deposited strata.**
- Hence, the mid-20th century represents the **optimal beginning of a potential Anthropocene Epoch** (base of the Anthropocene Series).
- **Changes to the Earth System** that characterize the potential Anthropocene Epoch include **marked acceleration to rates of erosion and sedimentation, large-scale chemical perturbations to the cycles of carbon, nitrogen, phosphorus and other elements**, the inception of significant change **to global climate and sea level, and biotic changes such as unprecedented levels of species invasions across the Earth.** Many of these changes are geologically long-lasting, and some are effectively irreversible.
- **These and related processes have left an array of signals in recent strata**, including plastic, aluminium and concrete particles, artificial radionuclides, changes to carbon and nitrogen isotope patterns, fly ash particles, and a variety of fossilizable biological remains. Many of these signals will leave a permanent record in the Earth's strata.
- **The Anthropocene beginning might conceivably be defined by a Global Standard Stratigraphic Age (GSSA), i.e. a numerical age that can be expressed as a calendar date such as 1945**. Or more, conventionally it could be defined by a Global boundary Stratotype Section and Point (GSSP), which is more colloquially a 'golden spike', and is a physical reference point in strata at one carefully selected place. Majority opinion on the AWG is to seek and choose a candidate GSSP, as this is the most familiar and widely accepted method of defining geological time units.
- **The AWG has already begun the process of identification of potential GSSPs, by initial analysis of the general environments in which the best combinations of stratigraphic signals may be found (e.g. undisturbed lake or marine sediments, annually banded coral skeletons, polar snow/ice layers, speleothems etc..**
- This will lead to selection of sites **for sampling and further analysis, to provide full descriptions of relevant signals in the strata, a process that we hope will lead to the identification of one or more suitable candidate sites for a GSSP. We would hope to complete this process over the next 2-3 years**.
- This would then form the basis for the preparation of a formal proposal, to our immediate parent body, the **Subcommission on Quaternary Stratigraphy (SQS)**, on defining a formal Anthropocene unit. If the SQS recommends this by supermajority vote, **the proposal will go on to its parent body, the International Commission on Stratigraphy (ICS) to be voted on**, with any **vote in favour still needing to be ratified by the Executive Committee of the International Union of Geological Sciences (IUGS)**.
- **If all of these conditions can be fulfilled, then the Anthropocene would become a formal part of the Geological Time Scale**

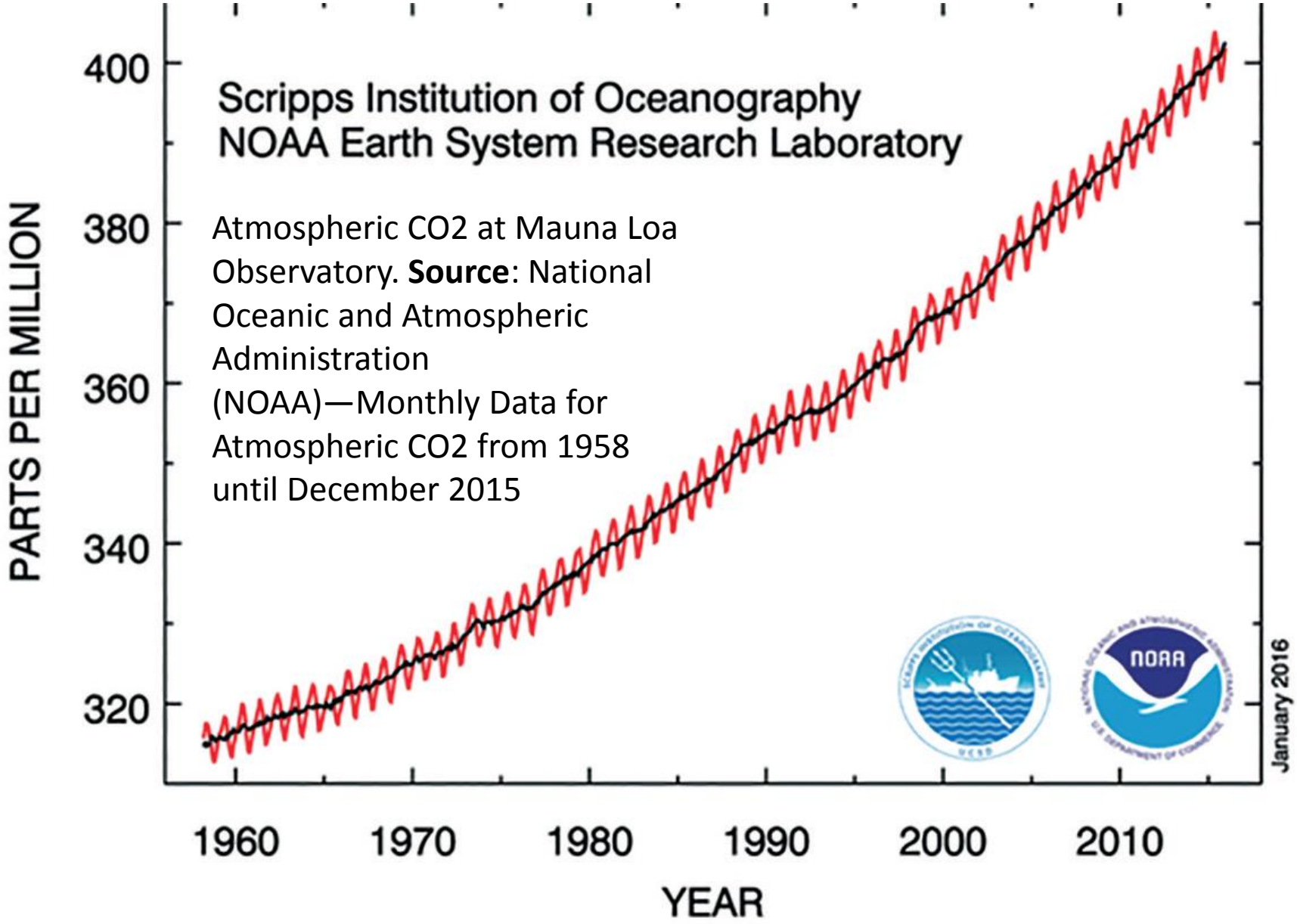
1.3. Geological Time: Earth History



1.4. The Holocene (11600 BP-now)



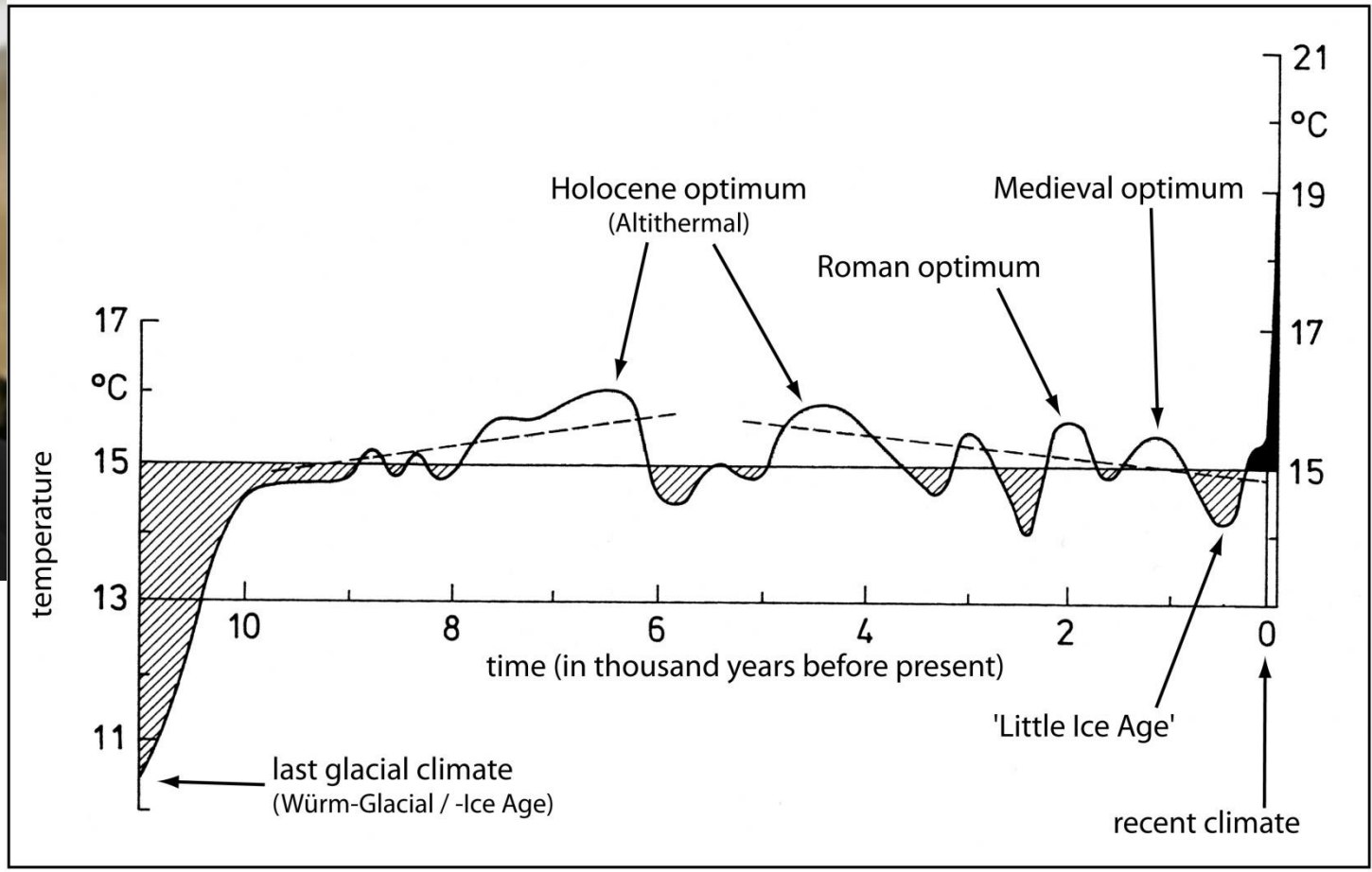
1.5 Concentration of CO2 (1958-2015)



Atmospheric CO2 at Mauna Loa Observatory. **Source**: National Oceanic and Atmospheric Administration (NOAA)—Monthly Data for Atmospheric CO2 from 1958 until December 2015

1.6 From the Holocene (12.000 years b.p.) to the Anthropocene (1784 AD or by 1950)

Paul Crutzen, Nobel Laureate for Chemistry (1995)



In Geology/geography: **Holocene** era of earth history since end of glacial period (10-12.000 years ago, Anthropocene, since industrial revolution: anthropogenic climate change: burning of coal, oil, gas➔GHG increase

1.7. We need a New Copernican Scientific Revolution towards Sustainability

- Hans Joachim **Schellnhuber (1999) called for a 'Second Copernican revolution'** and William C. Clark contributed to the NRC Study (1999) ***Our Common Journey. A Transition towards Sustainability***
- Natural scientists (Clark/Crutzen/Schellnhuber 2004) have called for a '**second Copernican revolution in science'** (Kuhn 1962) and development of a **new scientific world view** and a new **sustainability paradigm**.
- They called **for a new Copernican revolution, a new paradigm for sustainability and a new 'social contract'** between science and society for **planetary stewardship** (Clark/Crutzen/Schellnhuber 2004)
- **Such a Copernican Revolution requires a fundamental change in the mindset of policymakers and a worldview of scientists and society and a Global Mindshift in the political and economic thinking.**
- **Combine and broaden two separate debates on Sustainability Transition**
  - **US debate (Tellus Institute, 1976ff., NRC, 1999)**
  - **Dutch and European Debate (STRN, IST conferences, Amsterdam, 2009 – today)**

1.8.Two examples: Towards a Political Geoecology and Peace Ecology in the Anthropocene

- **Political geoecology for the Anthropocene** (Brauch 2003; Brauch/Dalby/Oswald Spring, 2011):
  - **Physical geography**: Huggett: **geoecology** (detached from the social sciences): has resulted in a **research** and **degree programme** in a few universities
  - **Bringing politics** in: Moving from **ecological geopolitics** (Dalby) to **political geoecology for the Anthropocene**
  - **Searching for research/teaching programmes** linking natural & social sciences
- **Peace Ecology** (Oswald Spring/Brauch/Tidballs, 2014).
  - **Bridgebuilding among two distant programmes in the social sciences (since 1960s Kenneth Boulding)** of the
    - **Environmental or (sustainability) programmes**
    - **Peace programmes**
  - **Peace Ecology concept** (Kyrou 2007, Amster 2014, Brauch 2016, Brauch et al. 2017), e.g. environmental peacemaking (2004).

2. Peace Research: A Research Field

- My discipline: political science, international relations
- My research areas: security & peace issues (until 1990), since 1991: international environment policy and since 2000: linking both -> as peace ecology in the making
- Peace Research: a normative approach to the world (how it is and how it should be: peace message of religions)
- My own focus dual challenge to human survival
  - Nuclear Era (deterrence, nuclear war, nuclear winter etc.)
  - Impact of Global Environmental Change (since 1970, 1990s)
- Linking both: peace/security and environmental studies
- Dual perspective of Security & environment (environm. Security) or peace & ecology (peace ecology)

2.1 Security and Peace Concepts

- **Security concept: many origins, historical, religious traditions**
- **Occident: Greek-Roman tradition and in Cold war: US influence**
- **Nonwestern origins in Buddhism and Hinduism and in Islam in the holy Koran but also Confucian impact: Hexagon III:**
- **Contextual change: conceptual innovationa after end of Cold War**
  - **3 books. 3 reasons. End of Cold War, Globalisation, Global Environm. Change**
- **Peace concepts: difference due to different traditions: occidental vs. oriental but also different cultural and religious traditions**
- **1945: UN Charter: international peace and security, reference to „threat to the peace“ but a „Security Council“**
- **Occidental tradition: Pax Romana, Christian, now secular traditions**
  - **Hindus, M. Gandhi: ahimsa, peace with nature**
  - **Galtung: formal concept negative vs. positive peace**

2.2 Phases of International Relations and Peace Research

Phases of International Relations: West: UK & US dominance

- Early phase: After WW I: idealist: disarmament & internat. Law
- Postwar: After WW II. realist-traditionalist: Morgenthau: power
- Behaviouralist revolution: Since 1950s: quantitative methods
- Globalists since 1980s: Decline of the nation state
- Structural or Neorealists:
- Neoliberals
- Constructivists and many new approaches

Stages of Peace Research (influenced by IR, psychology et al.

- Peace activism against Cold War mainstream (influenced by behaviouralists in US)
- Critical approaches: Johan Galtung (mathematician, sociologist): Pacifist motivation
- Peace religions: Quakers (Elise & Kenneth Boulding, Bradford School: Adam Curle)
- Peace psychologists: M. Deutsch, H. Kelman, R. Fisher etc.
- Political critics of cold war, underdevelopment, authoritatian regimes etc.

2.3. ‘Sustainable Peace’: Facing Challenges of the Anthropocene

- **Galtung** distinguished:„negative vs. positive peace“, coined „cultural peace“ & **Oswald** added „engendered peace
- **„Peace with nature“ or „sustainable peace“**: underdefined normative goal used by some UN bodies (e.g. in Africa) and humanitarian NGOs (post conflict) and a few peace scholars.
- **Peace ecology in the Anthropocene** or ‘**peace ecology quintet’:** 5 pillars: **peace, security, equity, sustainability and gender**.
- For linkages between peace and security: ‘**negative peace**’
- For relationship between peace & equity: ‘**positive peace**’
- For interactions: peace, gender & environment: ‘**cultural peace**’
- For relations of peace, equity & gender: ‘**engendered peace**.’

2.4. Widened Concept of Sustainable Peace

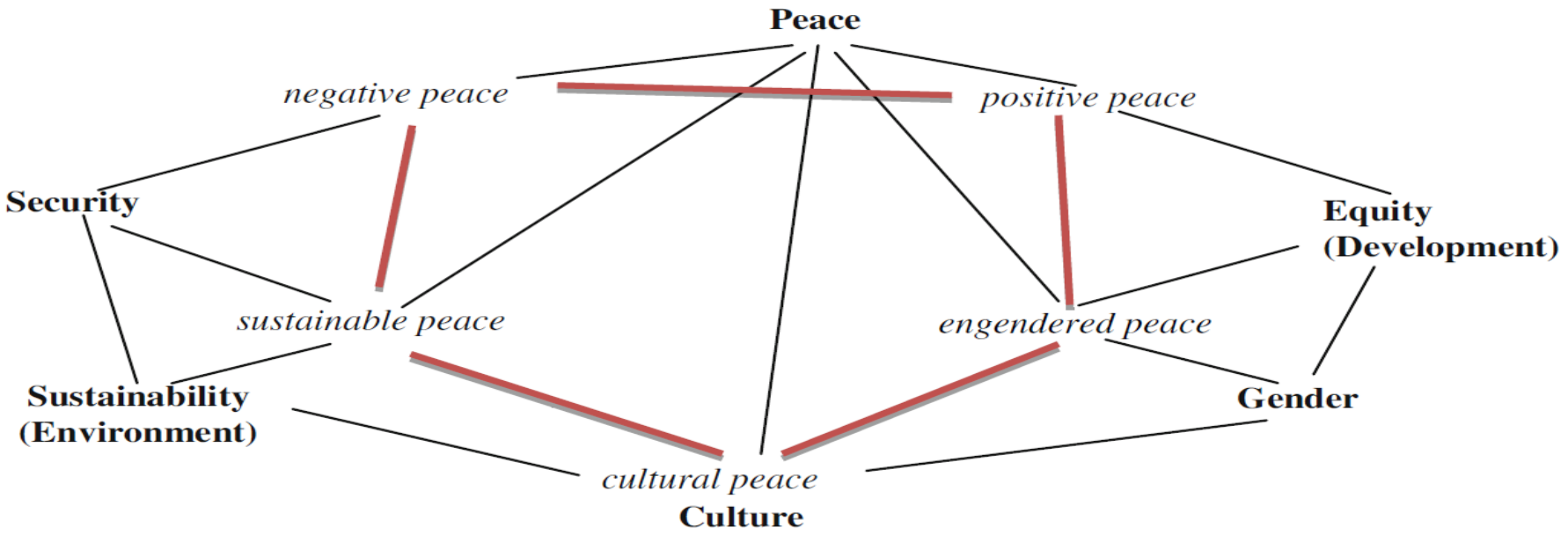


Fig. 1.1 Five pillars of peace ecology and their four linkage concepts of negative, positive, cultural and engendered peace. *Source* The Authors

Sustainable peace refers to the manifold links among peace, security and the environment, **where humankind & environment as 2 interdependent parts of global Earth face the consequences of destruction, extraction and pollution.**

The **sustainable peace concept** includes also processes of recovering from environmental destruction, reducing human footprint in ecosystems through less carbon-intensive, and in the long-term possibly carbon-free & increasingly dematerialized production processes, so that future generations may still be able to decide on their own resources & development strategies.

2.4. We are the Threat! We are the Victims!

2.6. We are threatening survival of humankind!

- In classical conflict analysis: **we vs. them**: the „other“ is the attacker – „we“ are the defender.
- This is fundamentally changing in the Anthropocene
  - Since **1st industrial revolution** for first time **humankind (we)** have directly interfered into the earth system
  - **Cause of the threat**: our burning (consumption) of coal, oil and gas for agriculture, industrial production, housing (heating & coooling), transportation & consumption
  - **We are the threat** with our **ecological footprint**
  - **We are the victims of natural hazards (storms, floods, landslides, droughts, forest fires, heat waves etc.**
  - **„We“ differ in North (climate laggards) & South: equity**

2.7. Sustainable Peace in the Anthropocene

- This chapter conceptualizes possible and plausible linkages between the emerging ‘sustainability transition’ research paradigm and the conceptual debate on a rethinking of peace, security, development and the environment or ecology, within the context of four research programmes carried out since the end of the Cold War.
- Within the framework of a shift in earth history from the Holocene to the Anthropocene during the past sixty years, the threat to the survival of humankind has fundamentally changed. No longer are ‘others’ the threat, but ‘we’ are, due to the exponential increase in the burning of hydrocarbons and the resulting accumulation of greenhouse gases in the atmosphere. This new anthropogenic threat can no longer be countered with traditional military strategies and means. I
- n the twenty-first century, there needs to be a long-term transformative change towards a low-carbon economy, in production and consumption, and in the energy, transportation, agricultural and housing sectors. Only thus can dangerous climate change and chaotic tipping points in the climate system be avoided. Such a low-carbon economy should be the result of a transition to sustainability, necessitating not just sociotechnical changes but changes in perception, values, behaviour and lifestyles.
- Such a long-term transformative change to sustainability may possibly prevent two types of conflicts: climate-induced violent conflicts, and those driven by resource scarcity.
- On the conceptual level, this chapter suggests possible linkages that may be developed in the Anthropocene between sustainable development, human security and sustainable peace in the context
  - of both a *political geoecology*—between the natural and social sciences—
  - and a *peace ecology*—between peace, security, development and environmental studies.
  - Its key message is the need for more conceptual, theoretical and empirical research into possible linkages between peace studies and ecology that takes into account the changed human and environmental conditions in the framework of the Anthropocene. The added value is to sensitize research on ‘sustainability transition’ so that it reflects on the impact of its realization on sustainable peace and human security.
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3. Peace Ecology: An Approach Linking Peace Studies & Ecology

- Thus, peace ecology is here being conceived primarily as a '**political concept' within an 'action perspective**,' and not as a scientific concept and research paradigm or programme.
- **'Peace ecology** in the Anthropocene' refers to the goal of **'peace**' (in its multiple dimensions as positive, negative, cultural, engendered and sustainable peace) **from the perspective of 'ecology'.**
- **Ecology** has expanded its meaning from the biophysical sciences after World War II, to include the social sciences and humanities.
- **Peace ecology in the Anthropocene** aims to address human-induced changes in the earth system, and lead them toward **peaceful alternatives** (Oswald Spring/Brauch/Tidball 2014a).
- **Dalby** (2013, 2013a, 2014, 2015) has discussed conceptual issues of security during the Anthropocene, **Brauch et al.** (2017) approaches the socio-political problems triggered during the Anthropocene from a **scientific perspective of peace ecology.**
- These prolegomena need both thorough conceptual theoretical reflections and empirical research in the years to come, from both the peace and the environmental research communities as part of a combined effort across disciplines.

4. From Disciplinary, to Multi- and Inter- and Transdisciplinary Approaches

Sciences & social sciences are organized along disciplinary lines

- Linkages between sustainability transition & sustainable peace require bridge-building between different scientific disciplines in natural & social sciences and different research programmes of political science: environ-mental & development studies, focus on sustainable development, between peace and security studies.

This requires a fundamental shift from narrow disciplinary and programme-specific approaches to *multi- and interdisciplinary perspectives* as well as *transdisciplinary and transformative research designs and policy proposals*.

- **Multidisciplinary:** offers a first step in analysing complex problems from different disciplinary perspectives. These multidisciplinary studies rely on the methodologies of their respective disciplines.
- **Interdisciplinary: Jean Piaget** worked in different disciplines, in developmental psychology, cognitive theory and genetic epistemology, pioneered a new **transdisciplinary scientific approach**. Piaget promoted communication among different disciplines, in 1960s he proposed using the term 'interdisciplinary' and applied it **to pedagogic units** or modules in order to **integrate knowledge from different disciplines**. This interdisci-plinary approach was taken up by new approaches and fields, such as bioengineering and brain sciences.

4.2. Transdisciplinary Approaches

- **Complexity of the Anthropocene, global environmental change, of resource scarcity,** several research centres and think tanks proposed **transdisciplinarity as a new scientific approach** to overcome the disciplinary boundaries of specialized subfields & epistemic schools.
- For **Hirsch Hadorn et al. (2008), Jaeger and Scheringer (1998),** transdisciplinarity refers to "the cause of the present problems and their future development (***system knowledge***)"; to the "values and norms … [to] be used to form goals of the problem-solving process (***target knowledge***)"; and to "how a problematic situation can be transformed and improved (***transformation knowledge***)". They argue that "transdisciplinarity requires adequate [ways of] addressing … the complexity of problems and the diversity of perceptions of them, that abstract and case-specific knowledge are linked, and that practices promote common good".
- ***Multidisciplinarity*** draws on knowledge from different disciplines but stays within their boundaries", a definition of transdisciplinary and interdisciplinary research states:
  - *Transdisciplinary Research* is defined as research efforts conducted by investigators from different disciplines working jointly to create new conceptual, theoretical, methodological, and translational innovations that integrate and move beyond discipline-specific approaches to address a common problem. *Interdisciplinary Research* is any study or group of studies undertaken by scholars from two or more distinct scientific disciplines. The research is based upon a conceptual model that links or integrates theoretical frameworks from those disciplines, uses study design and methodology that is not limited to any one field, and requires the use of perspectives and skills of the involved disciplines throughout multiple phases of the research process.

4.3. Transdisciplinary Approaches (2)

- In short, *transdisciplinarity* refers to a research strategy that establishes a **common research objective that crosses disciplinary boundaries**.
- The goal is to create **a holistic approach by addressing complex problems that require close cooperation between several disciplines, such as brain or cancer research or issues of global environmental change**, where medical, behavioural, environmental, economic and political sciences work together. **Funtowicz and Ravetz (1993) argued that "transdisciplinarity can help determine the most relevant problems and research questions involved"** .
- **Holistic system** analysis also contributed to *transdisciplinary* research, which includes all possible aspects and focuses on the interaction among different elements. ***Transdisciplinarity* takes a structural approach (Nicolescu w/d) and distinguishes between different levels of analysis.** The surrounding conditions facilitate dynamic adjustment of undesirable disturbers. Of particular interest is a systemic dissipative and self-regulating approach, based originally on Ilya Prigogine and the thermodynamic understanding of processes (**Prigogine/Stengers 1977: 184) and Haken's (1983) *Synergetics***.
- These 'dissipative and open systems' operate outside and mostly far from thermodynamic equilibrium in a setting where energy and matter are exchanged.
- **Prigogine characterized the 'dissipative structures'** with the spontaneous appearance of anisotropy or symmetry-embracing processes, where complex and often chaotic structures interact and create unpredictable new system formations. These dissipative systems are part of a permanent dynamic process which creates a new equilibrium among the existing structures and substructures, but also among the flows at different levels.
- **The outcomes are permanently changing processes and new structures, which are far from equilibrium but able to maintain some dynamic functionality within the global system.**

4.4 From Systems Analysis to Transformative Science

- **Niklas Luhmann (1991) applied dynamic system analysis** to sociology and used the term 'autopoiesis', which originally described and explained the nature of a living system. Luhmann's term 'autopoiesis' refers to the complexity of dynamic systems which interact with the complexity of the environment.
- **Luhmann insisted on the radical nature of the concept and assessed five key characteristics**: autonomy, emergency, operative closure, self-structuration and autopoietic reproduction.
- **These elements are essential for the analysis of new risks and uncertainties caused by changes in the environment and social behaviour in the Anthropocene.**
- **Schneidewind, inger-Brodowski, and Augenstein (2016)** proposed moving from a **'transdisciplinary' approach to a 'transformative science'**, while **Swilling (2016) suggested an 'anticipatory science**'.
- The concept of '**transformative research' or 'science'** has been used since the 2000s for a new approach that cuts across the dominant scientific paradigms.
- **US National Science Board (2007)** adopted this working definition of 'transformative research':
  - "[it] involves ideas, discoveries, or tools that radically change our understanding of an important existing scientific or engineering concept or educational practice or leads to the creation of a new paradigm or field of science, engineering, or education. Such research challenges current understanding or provides pathways to new frontiers".

4.5 Transformative Science for Sustainability Transitions

- In “Transformative Science for Sustainability Transitions”, *Schneidewind*, *Singer-Brodowski*, and *Augenstein* (2016) reviewed the need for & definition of ‘transformative science’, me-thodological challenges of **transformative research** given the status quo of transdisciplinary science.
- They suggested moving from **transdisciplinary to transformative research**, and discussed the institutional challenges of a transformative science that could **achieve institutional self-transformation and a ‘new governance of science’ by shifting from science policy to governance of science if civil society were given a larger role**. Their **main messages** are:
  - 2. ‘**Transformative science’** has catalysed necessary processes through suitable forms of knowledge production. **Transformative science is based on debates about transdisciplinary/transformative research and places emphasis on the aspirations of scientists to intervene in complex systems** and to carry out **research in real-world laboratories**. It focuses on the **problem dimensions of sustainability science** and aims for an institutional change as the framework condition for sustainability science. **Transformative science focuses on the whole science system, which faces massive transformations.**
  - 4. In the context of sustainability transitions, science system transformations require reflection on the institutional conditions for a broadening and a quality enhancement of sustainability sciences as a whole.
  - 5. They sketched out such change processes for the German science system and showed how processes of reform have prepared the ground. Although this case cannot be generalized, structural similarities may exist in other cases.
  - 6. This was illustrated for global initiatives, such as the Future Earth programme and the global change research agenda of the International Social Science Council.

4.6. From Research on Transformation to Transformative Research

- Building on this approach, in ***World in Transition—A Social Contract for Sustainability*, the WBGU** (2011: 21–23, 321–356) referred to "four transformative pillars of the knowledge society":
  - '**transformation research**' and '**transformation education**', as well as
  - '**transformative research**' and '**transformative education**'.
- It proposed (2011: 21) that '**transformation research**' should "specifically addresses the future challenge of transformation realisation" by exploring "transitory processes in order to come to conclusions on the factors and causal relations of transformation processes" and should "draw conclusions for the transformation to sustainability based on an understanding of the decisive dynamics of such processes, their conditions & interdependencies.
- **Transformative research supports transformation processes** with specific innovations in the relevant sectors and it should encompass, for example, "new business models such as the shared use of resource-intensive infrastructures, and research for technological innovations like efficiency technologies" by aiming at a "wider transformative impact".
- **Uwe Schneidewind and Mandy Singer-Brodowski (2013) and Maja Göpel** (2017) have developed this **transformative approach** further for **climate policy and for research on sustainability transition.**

4.7. ISSC: *Transformative Cornerstones of Social Science Research for Global Change*

- **UNESCO's International Social Science Council** (ISSC 2012: 21–22) in its report on the *Transformative Cornerstones of Social Science Research for Global Change* identified six cornerstones: **1) historical and contextual complexities; 2) consequences; 3) conditions and visions for change; 4) interpretation and subjective sense-making; 5) responsibilities; and 6) governance and decision-making.** The report concluded that
  - the **transformative cornerstones framework** speaks to the full spectrum of social science disciplines, interests and approaches—theoretical and empirical, basic and applied, quantitative and qualitative. By not fashioning a global change research agenda around a substantive focus on concrete topics—water, food, energy, migration, development, and the like—the **cornerstones are not only inclusive of many social science voices** but, perhaps most importantly, show that **climate change and broader processes of global environmental change are organic to the social sciences, integral to social science** preoccupations, domains par excellence of social science disciplines. …
  - **The transformative cornerstones of social science function not only as a framework for understanding** what the social sciences can and must contribute to global change research.
  - They function as a **charter for the social sciences, a common understanding of what it is that the social sciences can and must do to take the lead** in developing a **new integrated, transformative science of global change**.

4.8 Transformative Approaches

- **The seventh conference of the Sustainability Transitions Research Network (STRN) addressed "Exploring Transition Research as Transformative Science"**.
- Various initiatives by the **US National Science Board (2007), the ISCC (2012), and the STRN (2016) have called for a new scientific paradigm in research into both global environmental change and sustainability transitions**.
- **The policy dimension should be included in the research design, by moving from knowledge creation to action, to policy initiatives, development and implementation**.
- These excluded social groups promote transformative processes from their daily situation of marginalization, violence and exclusion, and **promote sustainable livelihoods not for elites, but for wider social groups.**

4.9. Transformative Science Requires Bridge-building Between Disciplines and Programmes

- **Opposing trends:**
  - **Overspecilization of science** (know more & more on less, communicated in highly specialized journals with very few readers)
  - **Overspecialized scientific results** can hardly be translated for a wider societal, economic, political and scientific audience
  - **Impacts of climate skepticism on political ideologues** and populists in North America (D. Trump) and in Europe (Le Pen, AFD etc.)
- **Need for scientific bridgebildung & responsibility**
  - **Max Weber to Hans Jonas:** *Ethics of Responsibility*
  - **E.O. Wilson** referred to **Consilience (1988)** as an
    - (interlocking of causal explanations across disciplines) in which the "interfaces between disciplines become as important as the disciplines themselves"
    - that would "touch the borders of the social sciences and humanities."

5. From Sustainable Development to Sustainable Development Goals

- **Brundtland Report (1987) coined term „Sustainable Development“**has become a key concept guiding both policy and scientific debates for the past quarter century.
- This report 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”**. In its definition, this term comprises two other concepts of **“‘needs**’, in particular the essential needs of the world’s poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs” (Brundtland Commission 1987).
- For the Brundtland Commission “sustainable development 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”.**
- The **United Nations 2005 World Summit Outcome Document** refers to sustainable development as the “interdependent and mutually reinforcing pillars” of sustainable development
  - as economic development,
  - social development, and
  - environmental protection.
- The ‘outcome document’ of the second earth summit (Rio+20) of 22-24 June 2012 addressed the **“green economy in the context of sustainable development and poverty eradication” that offers a comprehensive be list of proposals made since the first Rio earth summit (1992) but lacks any legally binding political obligation.**

5.1 Sustainable Development Goals

- **Sustainable Development Goals were adopted by UN GA in September 2015 and succeeded Millenium Development Goals (2000)**

5.2. SDG 16: Peace and Justice

SD Goal 16 "is dedicated to the promotion of peaceful and inclusive societies for sustainable development, the provision of access to justice for all, and building effective, accountable institutions at all levels". Among its twelve key targets are:

- **Significantly reduce all forms of violence and related death rates everywhere**
- End abuse, exploitation, trafficking and all forms of violence against and torture of children
- Promote the rule of law at the national and international levels and ensure equal access to justice for all
- By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime
- Substantially reduce corruption and bribery in all their forms
- Develop effective, accountable and transparent institutions at all levels
- Ensure responsive, inclusive, participatory and representative decision-making at all levels
- Broaden and strengthen the participation of developing countries in the institutions of global governance
- By 2030, provide legal identity for all, including birth registration
- Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements
- Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism & crime
- Promote and enforce non-discriminatory laws and policies for sustainable development.

In the short-term targets there is no reference to 'sustainability transition' as a process to achieve a 'sustainable peace', nor is this term mentioned. Thus the concept lacks an action component to promote sustainable peace among nations, regions, and people.

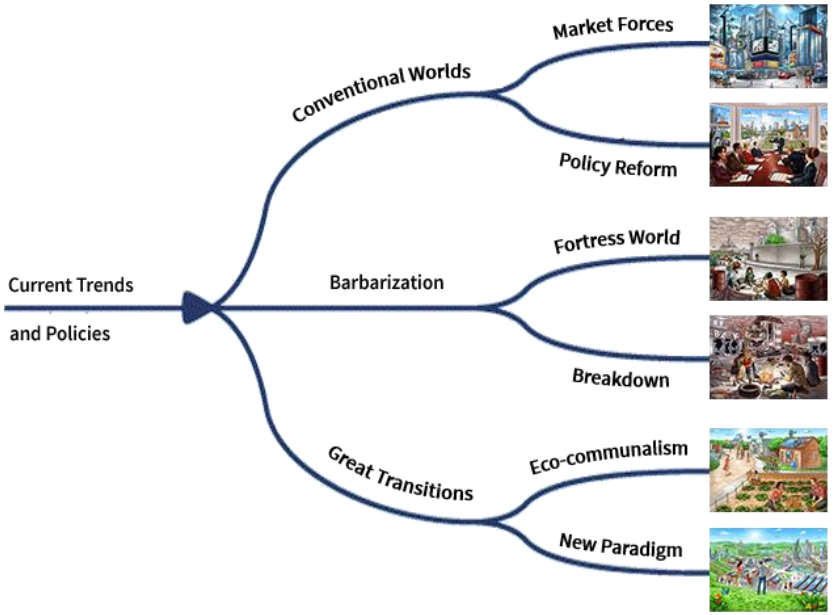
6. Research Approach and a Process: Sustainability Transition

- In their introduction to **"transitions to sustainable development", Grin, Rotmans, Schot** (2010: 2) used a definition by **Meadowcroft** (2000: 73), where **sustainable development aims at**
  - **"promoting human well-being, meeting the basic needs of the poor and protecting the welfare of future generations (intra- and intergenerational justice),**
  - **preserving environmental sources and global life-support systems (respecting limits, integrating economics and environment in decision-making, and**
  - **encouraging popular participation in development processes".**

6.1 Sustainability Transition: Origins and Conceptual Evolution since the 1970s

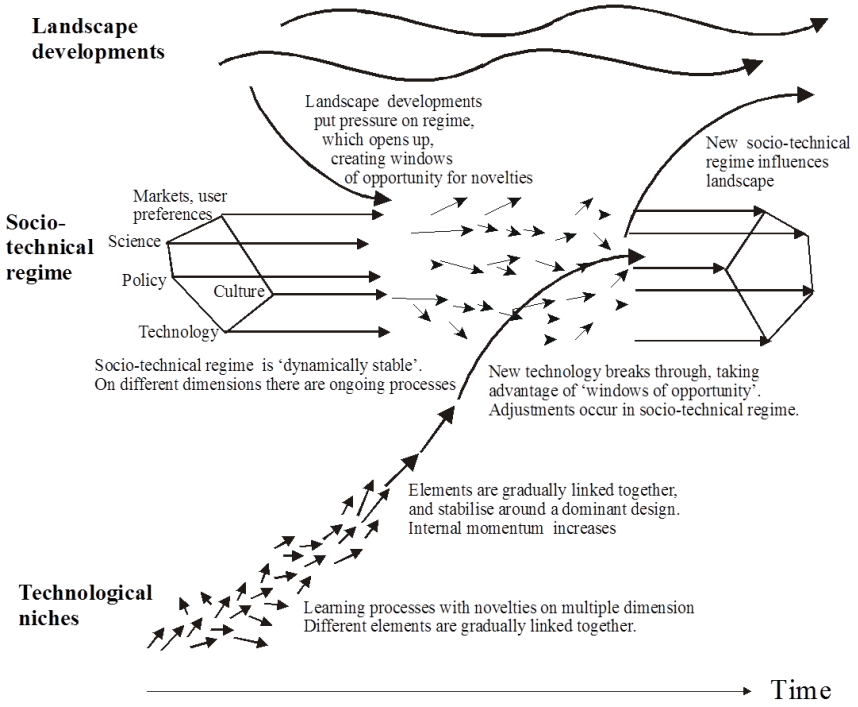
- Debate on 'sustainability transition' emerged first in the US in the 1970s and was taken up in a report by the **US Academy of Science (NRC 1999)** that focused on:
  - processes of a long-term system transformation necessary to contain & reduce effects of the dominant *business-as-usual* paradigm and to reduce GHG emissions through both *multilateral* quantitative emission reduction obligations & *unilateral* transformations.
- From 2005, a specific 'sustainability transition' research paradigm emerged from the ***Dutch Knowledge Network on Systems Innovation and Transition*** **(KSI)**
- At Amsterdam Conference in 2009 ***Sustainability Transition Research Network*** **(STRN)** was founded.

6.2. Two visions on sustainability transitions



Tellus Institute, since 1976 (Paul Raskin): *Great Transition Initiative* (GTI) coordinates a global network … [and] spreads the message that a future of enriched lives, global solidarity, and a healthy planet is possible if the citizens of the world join in a vast cultural and political mobilization for change. … It builds on the ground-breaking work of the international *Global Scenario Group*.

*Dutch Knowledge Network on Systems Innovation and Transition (*KSI) combined "three perspectives on transitions to a sustainable society: complexity theory, innovation theory, and governance theory".



Dutch Multilevel perspective on transitions. Geels and Schot (2010: 25), Geels (2002: 1263)

6.3. Approach of the US Tellus Institute

- In 2014, Paul Raskin, Tellus President, distinguished 3 global models:
  - ***Conventional Worlds*** **(business-as-usual),** a model which assumes structural continuity of present trends and actors,
  - ***Barbarization*** **(worst case), which** assumes "a deluge of instability swamps society's adaptive capacity, leading to a general global crisis and the erosion of civilized norms", and
  - ***Great Transitions*****, that imagines "how** the imperatives and opportunities of the Planetary Phase might advance more enlightened aspirations", envisioning the new values of "human solidarity, quality-of-life, and an ecological sensibility" instead of "individualism, consumerism, and domination of nature", and aiming for "institutions that support democratic global governance, well-being for all, and environmental sustainability".
- Raskin argued that at present: "Great Transition precursors announce themselves … in a rising cosmopolitan consciousness, civil society campaigns, and expanding subcultures seeking more responsible and fulfilling lifestyles." But while the technological feasibility may be easier, changing the cultural and political assumptions is more difficult. He claimed that "the Planetary Phase, by unravelling old patterns and mindsets and urging new ones, opens opportunities for creative social transformation" by fostering "the idea of global citizenship", which "carries both psychological and juridical meanings". But he cautioned that "intergovernmental institutions, transnational corporations, and big civil society organizations are unlikely candidates for the role of change agent", and hoped that "the natural change agent for a Great Transition would be a vast and inclusive movement of global citizens".
- The **Great Transition Scenario** distinguishes two pathways: "**Ecocommunalism" and "New Paradigm".**
  - First incorporates "**the green vision of bio-regionalism**, localism, face-to-face democracy, small technology, and economic autarky … [with the] emergence of a patchwork of self-sustaining communities from our increasingly interdependent world seems implausible",
  - **GTI embraces the "New Sustainability Paradigm**", which "sees globalization not only as a threat but also an opportunity to construct a planetary civilization rather than rely on the incremental forms of Conventional Worlds or retreat into localism. It envisions the ascendance **of new categories of consciousness—global citizenship, humanity-as-whole, the wider web of life, and the well-being of future generations—alongside democratic institutions of global governance".**

6.4 Dutch Approach since 2005

- A totally different approach to sustainability transition emerged from a large research project by the ***Dutch Knowledge Network on Systems Innovation and Transition (*KSI) in the Netherlands, in which eighty-five researchers participated (2005–2010**). Grin, Rotmans and Schot (2010) combined "three perspectives on transitions to a sustainable society: complexity theory, innovation theory, and governance theory". The authors
  - seek to understand **transitions dynamics**, and how and to what extent they may be influenced. … They do so from the conviction that only through drastic **system innovations and transitions** it becomes possible to **bring about a turn to a sustainable society to satisfy their own needs**, as inevitable for solving a number of structural problems on our planet, such as the environment, the climate, the food supply, and the social and economic crisis.
  - Our world has to overcome the **undesirable side effects of the ongoing 'modernization transition', which began around 1750.**
  - However, the **transition to sustainability has to compete with other developments**, and it is uncertain which development will gain the upper hand.
  - In ***Transitions to Sustainable Development*** **the authors … closely address the need for transitions, as well as their dynamics and design** (Grin/Rotmans/Schot 2010).

6.5. Sustainability Transition Research Network (STRN) since 2009

STRN focuses on sustainability problems in energy, transport, water and food sectors from different scientific perspectives on the ways

- in which society could combine economic and social development with the 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'.

STRN defined transitions research as a "new approach to sustainable development"

The STRN defined its mission as coordinating its scientific capacity "towards the production of foresight reports on strategic sustainability policy questions, … to support the development of a sustainability transitions research community internationally, and provide an independent, authoritative and credible source of analysis and insight into the dynamics and governance of sustainability transitions".

6.6. German Scientific Advisory Report on a 'Social Contract for Sustainability

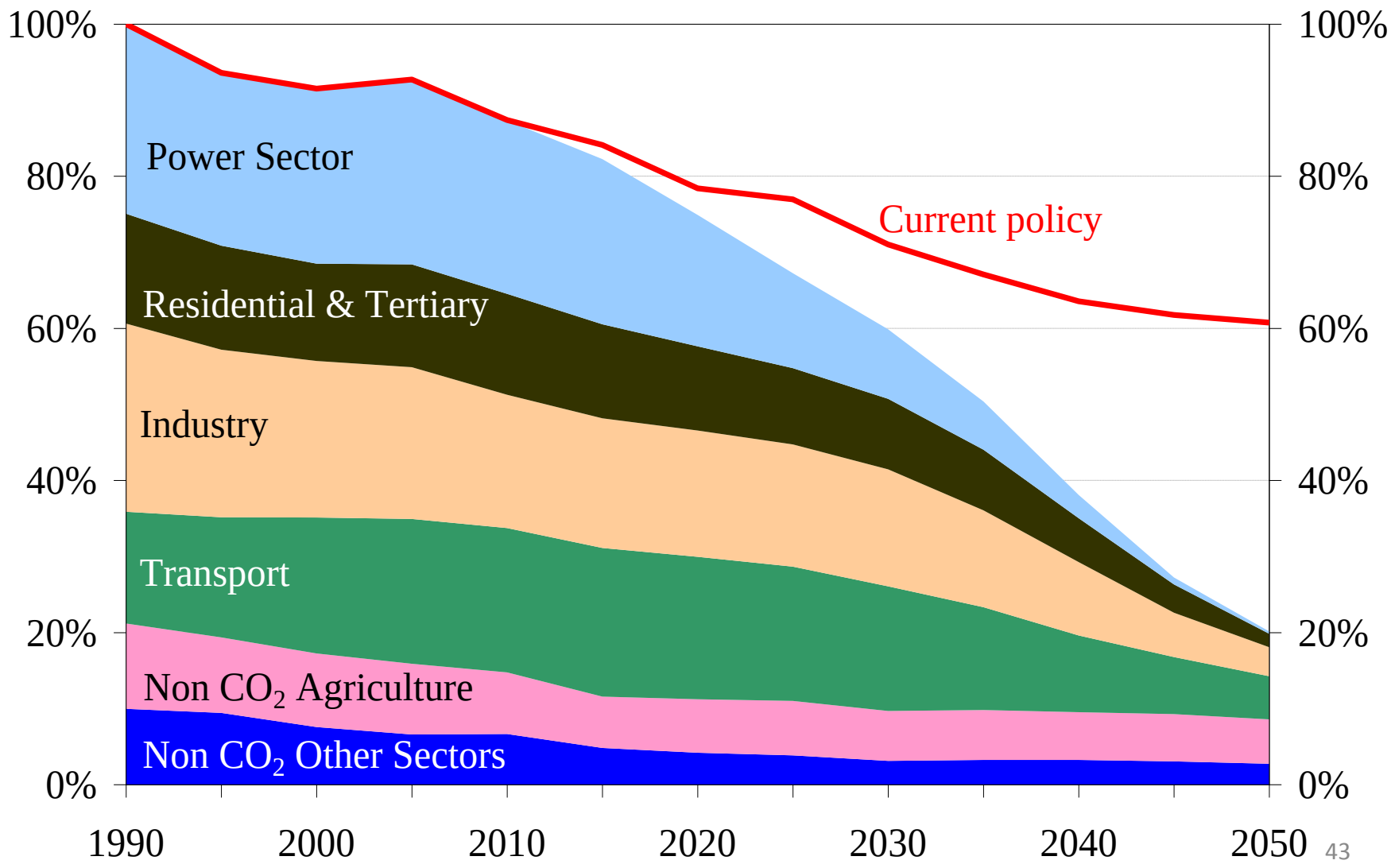
Research focus of KSI & STRN influenced a policy report by the *German Advisory Council on Global Change* (WBGU 2011) on a 'Social Contract for Sustainability' (2011). It argued that the transformation to a low-carbon society requires that we

- not just accelerate the pace of innovation; we must also cease to obstruct it. … We must also take into account the external costs of high-carbon (fossil energy-based) economic growth to set price signals, and thereby to provide incentives for low-carbon enterprises. Climate protection is … a vital fundamental condition for sustainable development on a global level.
- The WBGU report stated that "… a low-carbon transformation can only be successful if it is a common goal, pursued simultaneously in many of the world's regions" (WBGU 2011). It discussed (2011: 5) the global "remodelling of economy and society towards sustainability as a 'Great Transformation'. Production, consumption patterns and lifestyles in all of the three key transformation fields must be changed in such a way that global greenhouse gas emissions are reduced to an absolute minimum over the coming decades, and low carbon societies can develop."
- The transformation towards a climate-friendly society requires that many existing change agents lead to a "concurrence of multiple change" which "can trigger historic waves and comprehensive transformations".

6.7. Policy Debates on Green Growth and Decarbonization

- **UNEP (2011, 2014), OECD, the EU** and several governments have promoted an alternative vision and outlined **alternative policies for a global green deal, green growth, and a decoupling of economic growth from energy consumption**.
- These policy proposals were partly taken up by the **European Commission and the European Council** in its longer-term goals and policy papers on climate change, its energy (EU 2011), resource and transport policies (EU 2011a), and in its "**Roadmap for moving to a competitive low carbon economy in 2050**" **(EU 2011b).**
- **In this Roadmap the European Commission addressed the goal "of reducing greenhouse gas emissions by 80–95 per cent by 2050 compared to 1990". Based on these goals, the EU's Roadmap outlined milestones with "policy challenges, investment needs and opportunities in different sectors".**

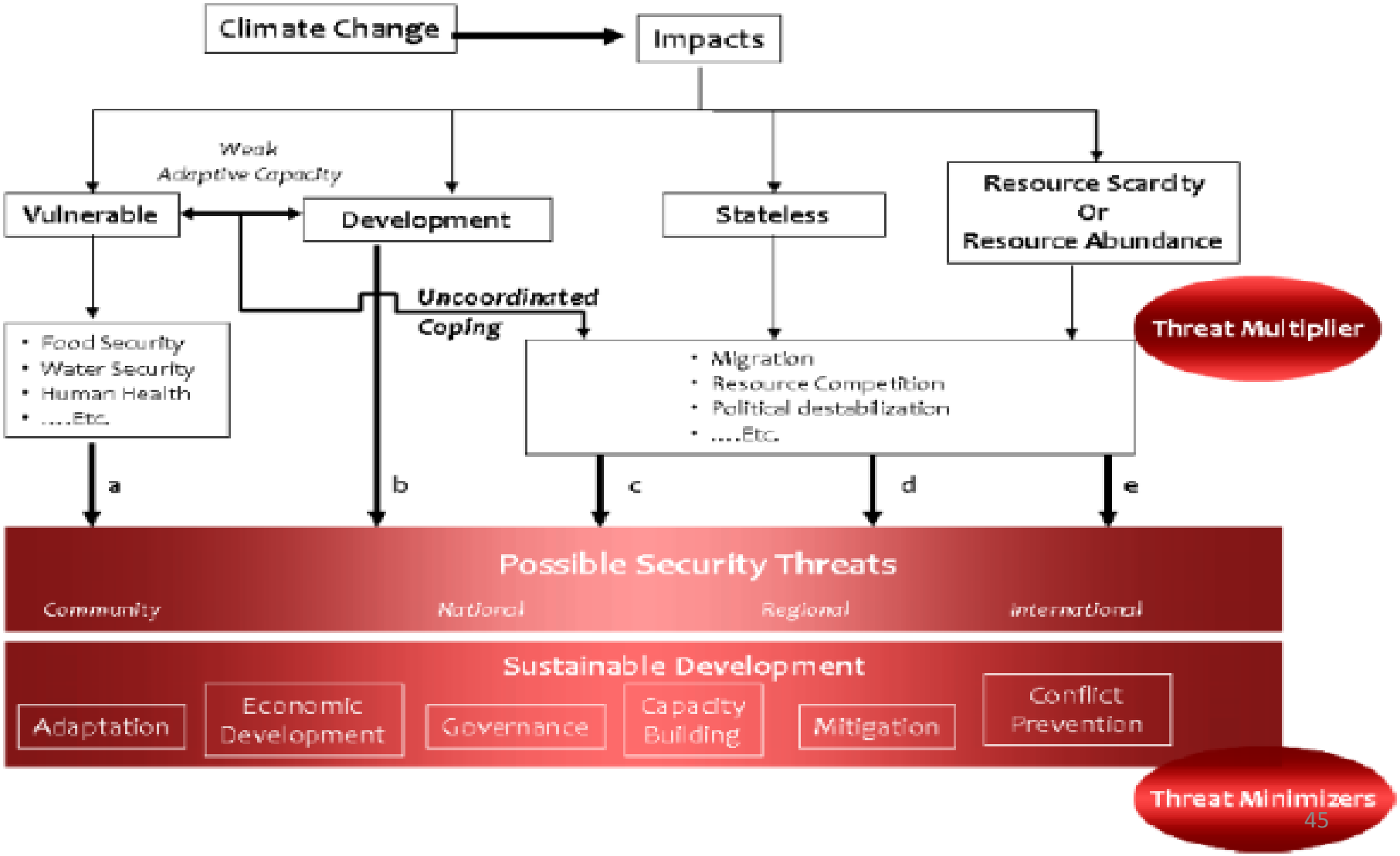
6.8 EU's "Roadmap for moving to a competitive low carbon economy in 2050



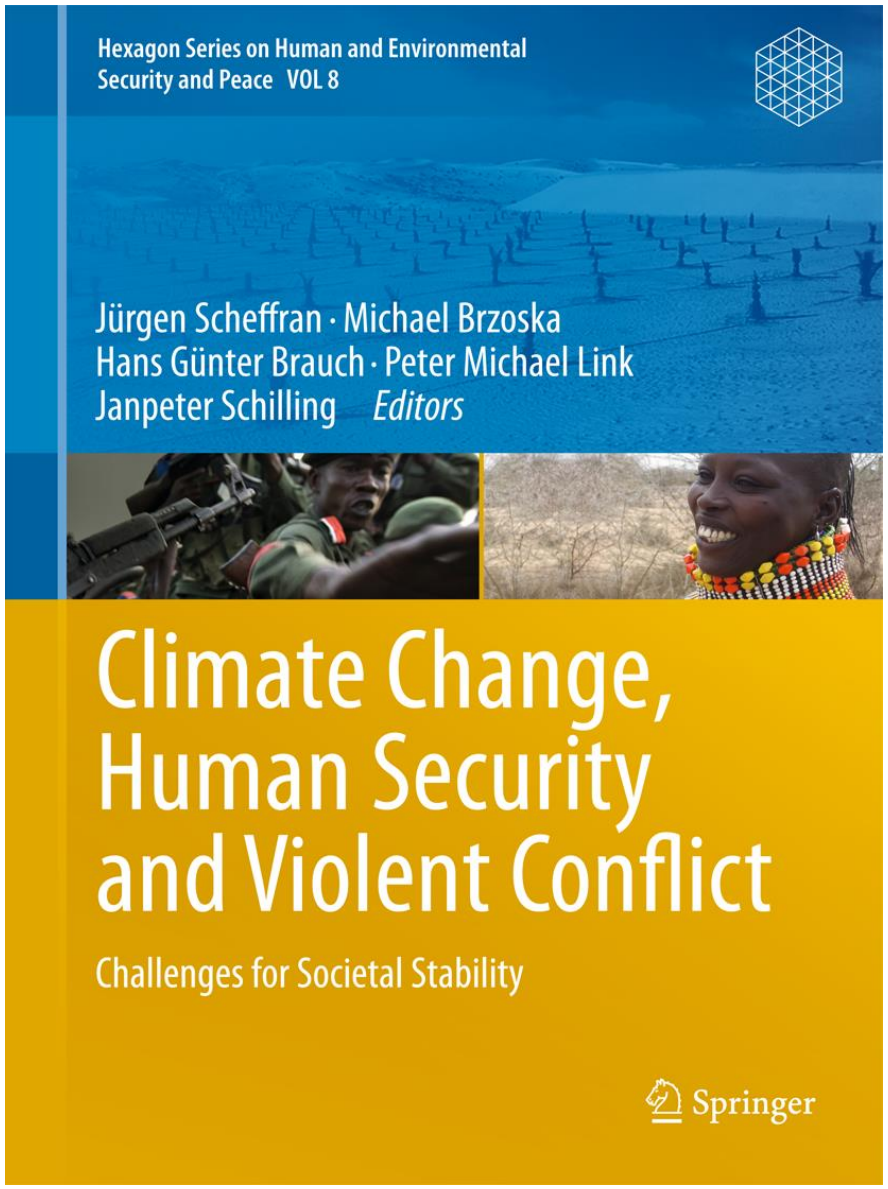
6.9 Towards a New Research Paradigm in the Social Sciences

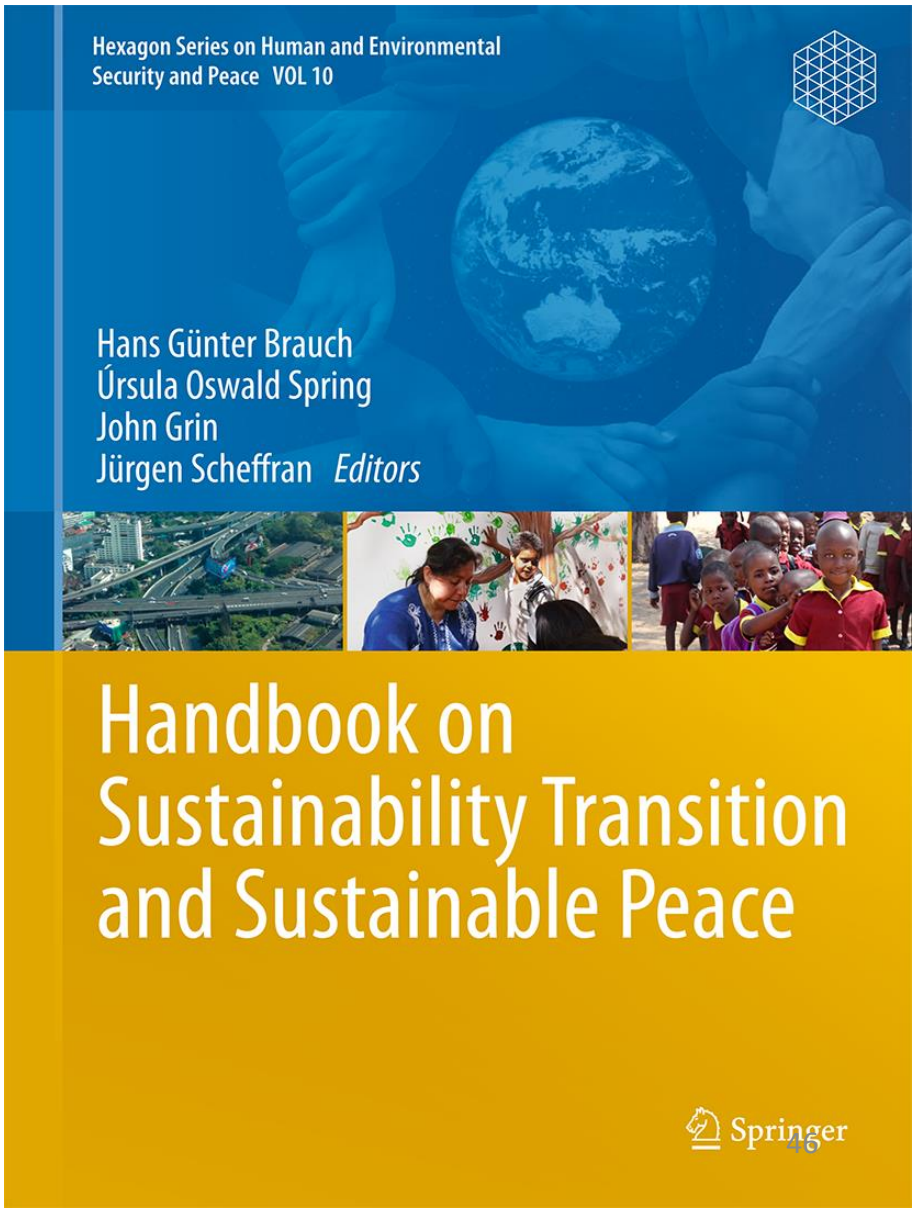
- While the policy debate since the publication of the Brundtland Report (1987) has partly triggered funding for new scientific institutions and research projects, the scientific debate has since moved much further from developing an approach to zero growth, to a reduction of the overuse of nature and the recuperation of ecosystem services that are essential for humans and nature.
- While natural scientists (Clark/Crutzen/ Schellnhuber 2004) e called for a 'second Copernican revolution in science' and the development of a new scientific world view and a new sustainability paradigm, in social sciences several approaches to 'sustainability research' exist:
  - the **'sociotechnical' approach of sociologists and historians** who examine technical innovations (inventions, breakthroughs and setbacks) in their specific national political, economic and societal contexts with the aim of drawing generalizable *lessons from past long-term transformative innovation processes* for the necessary transition to sustainable development;
  - the **'empirical approach' of *policy analysis*** that observes and assesses ongoing processes of sustainability transition, i.e. of discussion, planning, steering and implementation of processes of energy transition or change ("*Energiewende*");
  - '***discourse analysis***', that reviews and interprets scientific discourses, and the societal and political debates of multiple actors;
  - '***constraint analysis***', that analyses systemic (mindset), technical (laws of physics, status of innovation), ideological (e.g. cornucopian, Hobbesian), and interest-driven (lobbies of affected industries and trade unions) obstacles to strategies and policies aiming at sustainability transition.

7. Dual focus of UN Debate, UN SG (2009) on Climate Change & Security: Threat multiplier to threat minimizer



7.1. Two Handbooks (2012, 2016)





7.2. Goal of the Handbook

- **Oswald Spring and Brauch (2011)** argued that in the Anthropocene humankind faces two alternative visions and policy strategies:
  - ***Business-as-usual* (BAU) in a Hobbesian world**. Here economic and strategic interests and actions dominate and may lead to a major crisis for humankind, inter-state relations and nature.
  - The need for a ***transformation*** in **cultural, environmental, economic and political relations**
- **Scheffran, Brzoska, Brauch et al. (2012) examined possible consequences of the *first* alternative and showed, by addressing climate change as a 'threat multiplier**', that in the case of **no action it might lead to "dangerous climate change"** (UNFCCC 1992).
- This volume deals **'sustainability transition' that may serve as a sustainable alternative and avoid the negative consequences of climate change for human, national and international security.**
- Both visions address different coping strategies for this century for *global environmental change* (GEC) and climate change:
  - In **first vision, *cornucopian perspectives* or *business-as-usual*** suggest technical fixes and defence of economic, strategic & national interests, with the adaptation and mitigation strategies that are affordable for industrialized countries.
  - In the **alternative vision of a comprehensive transformation of the global economy,** *Politik*, society and culture, a *sustainable perspective* requires effective new strategies and policies.
  - **Their goal should be decarbonization, dematerialization, reduction of the water and environmental footprint, and global cooperation and solidarity. These would contribute to a sustainable peace with more global equity and social justice.**
- **The consequences of both scientific visions and policy perspectives are:**
  - The **first vision**—with minimal reactive adaptation and mitigation strategies—would increase the probability of dangerous global changes in the environment, water, food and climate, and there would be linear and chaotic changes in the earth system.
  - The **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, on domestic priorities and policies, and on inter-state relations in the world), ***mindsets*** (the strategic perspectives of policymakers), and new forms of national and global sustainable ***governance***.

7.3. Goal & Structure of the Handbook on Sustainability Transition & Sustainable Peace

- **Build on success of security handbook with 3 vol. 270 chap., in 4 years about 530.000 chapter downloads**
- **Modern technology: digital printing**
  - **Publication on demand**
  - **Digital printing allows coloured illustrations in printed books.**
- **2 tools for rapid and wide global scientific distribution:**
  - **Ebook chapters my be downloaded free of charge by faculty & students in universities in more than 4000 universities globally that subscribe to the relevant Springer Nature book package (Handbook)**
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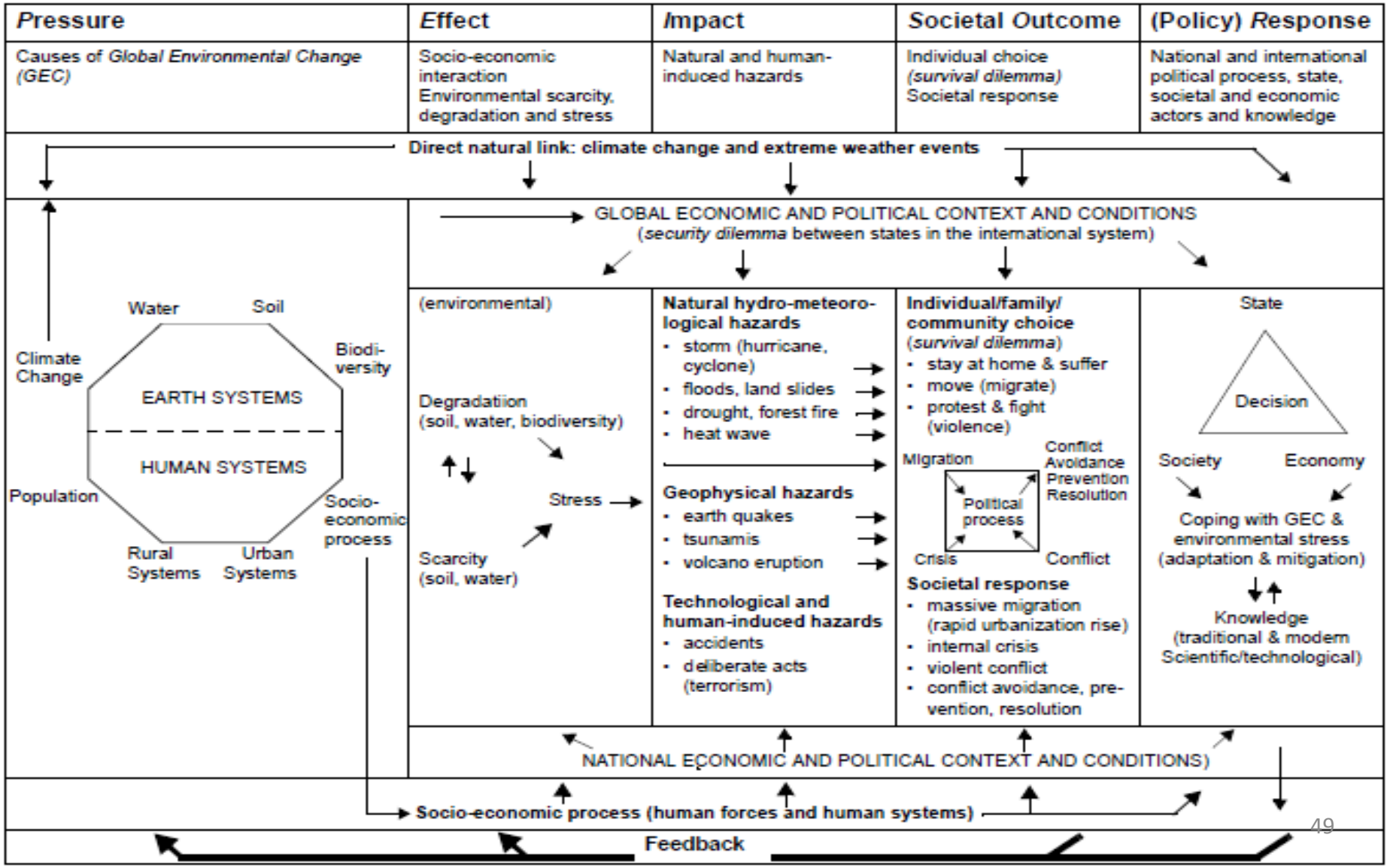
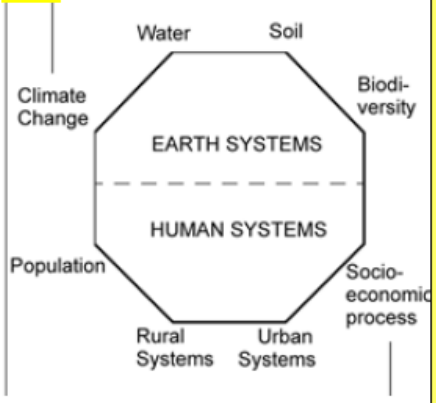
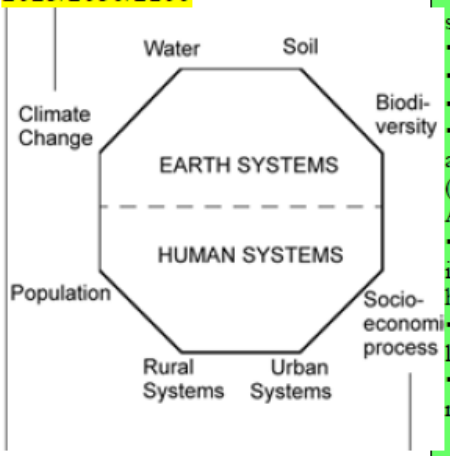
  - **Open access books (Maja Göpel)**
  - **Boookmetric data are updated monthly and are publicly accessible**
  - **Free access in selective African countries after a year: e.g. on a book on Burkina Faso, Ivery Goast and Ghana: in these three countries.**

6.7. PEISOR Model: Linking Effects && Impacts of GEC with Societal Outcomes & Responses



6.8. Two Alternative Strategies

Diagnoses of Global Environmental and Climate Change (chapter 1)			Alternative Strategies: BAU (1) vs. Sustainability Transition (2)			
Drivers	**Pressures and Interactions**	**Impacts (Outcomes)**	**Actors**	**Sectors (policies)**	**Social impacts**	**Security/peace**
→ Capitalism industrial revolution, →Fossil energy ↓ →Population growth →biodiversity loss →Food, soil, water → Production →Consumption →Transportation →Trade →Housing →Lack of urban, rural, environmental planning	**2015** 	→ Environmental Scarcity Degradation Stress →Temperature rise → Precipitation change *Climate-induced extreme weather events.* ▪ Storms, floods, landslides ▪ Drought, forest fire, heat waves → Glaciers melting →Sea-level rise → Health impacts	**BAU mindset worldview→** **Economy** (profit-driven, lobbies) **Politics, polity** (reactive) **Society/media** (consumerist lifestyle, waste) **Science** (disciplinary, conservative)	**Energy** (fossil energy growth, GHG) **Transport** (fossil energy: cars, trucks, planes, ships) **production** (fossil-driven) **Habitat/Housing** (urban sprawl) **Agribusiness** (energy intensive, agrichemicals)	Dominance of Western way of life & lifestyles (consumerist, abundance, waste) - highways - suburbia - meat-based diet - high water footprint - greed Land-use change (deforestation, desertification)	**Climate change as a threat multiplier** **→Resource scarcity and conflicts** **Climate-driven conflict constellations:** →water scarcity →food scarcity/hunger →migration →climate hazards & disasters
Stimuli for sustainable development →population stabilization → waste reduction **Sustainable** →production →consumption →transportation → ecological recovery →landscape planning →zero energy housing	**2025/2050/2100** 	→recovery of ecosystem services →water security →soil recovery →GHG reduction →Stabilization of global average temperature (UNFCCC, Paris Agreement) →Decline in number & intensity of climate-induced hazards & societal disasters →decrease of the ozone layer →climate change as threat minimizer	**Mindset for sustainability transition →** **Politics, polity** (proactive) **Economy →** (sustainable, innovative, energy efficient) **Society/Media →** (alternative lifestyles) **Science →** (transformative)	**Energy** (renewables, efficiency) **Transport** (public transportation) **production** (sustainability-driven) **Habitat** (parks) **Housing** (urban, rural protected areas) **Agriculture/Food** (organic, healthy)	- Energy & resource efficiency in production & consumption - Sustainable cities & rural areas - Sustainable architecture - Vegetarian diet - New values, behaviour, lifestyles, - Sustainable ethics - Reduction, reuse and recycling of waste	**Sustainable peace** - International cooperation on SDGs - Reduction of poverty & inequity - Gender equity - Dignified jobs - Decline in dependence on oil/gas rich regions - Elimination of land grabbing
↑------ (Strategies, policies, measures of decarbonization, dematerialization)----------↓						

7.4. Structure of the Handbook

Handbook on Sustainability Transition and Sustainable Peace examines in 10 parts:

1. moving towards **sustainability transition**;
2. aiming for **sustainable peace**;
3. meeting the **challenges of the twenty-first century**: demographic imbalances, temperature rise and the climate–conflict nexus;
4. initiating **research on global environmental change**, the limits to growth, and the decoupling of growth and resource needs;
5. developing **theoretical approaches to sustainability and transitions**;
6. analysing **national debates about sustainability in North America**;
7. preparing **transitions towards a sustainable economy and society, production and consumption and urbanization**;
8. **examining sustainability transitions in the water, food and health sectors** from Latin American and European perspectives;
9. preparing sustainability transitions in the **energy sector**; and
10. relying on **international, regional and national governance** for strategies and policies leading towards sustainability transition.

60 authors from 18 countries in 5 continents (40% women)

7.5. Hexagon Series: Volumes I-XIII

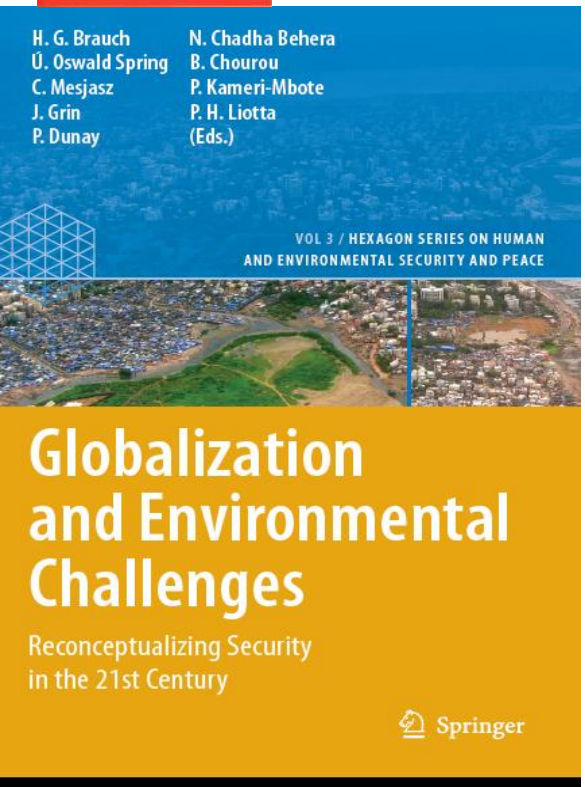
7.6. Global Environmental and Human Security Handbook for the Anthropocene

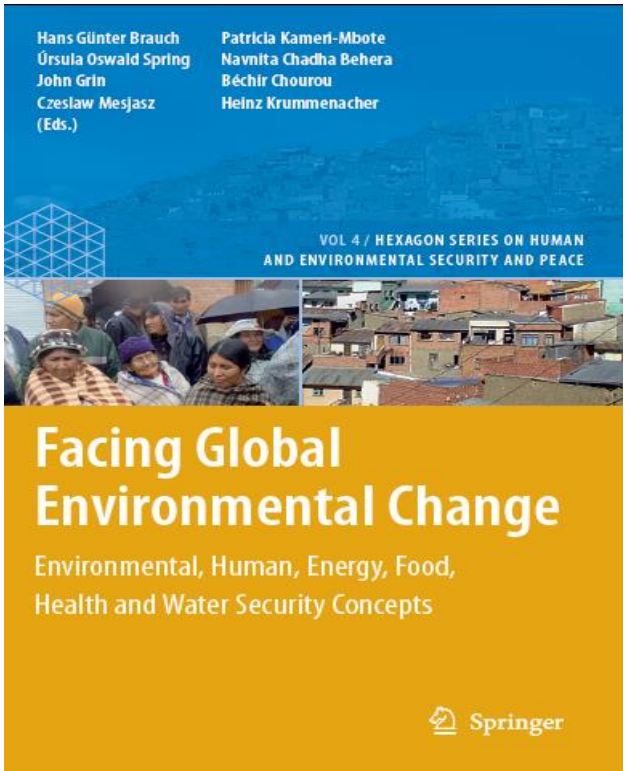
http://www.afes-press-books.de/html/hexagon.htm

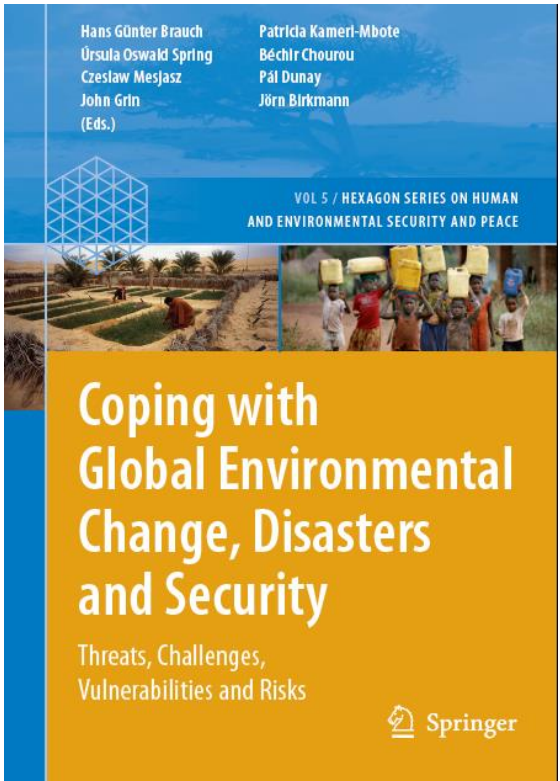
Vol. 3 (1): Globalization and Environmental Challenges: 92 authors, 36 countries, 16 disciplines, (2008)

Vol. 4 (2): Facing Global Environmental Change: 132 authors, 49 countries on global debate and problems of environmental, human, energy, food, health, water security (2009)

➔**Vol. 5 (3): Coping with Global Environmental Change:** ***Disasters and Security – Threats,Challenges, Vulnerabilities and Risks*** **164 authors, 48 countries (2011).**







8. The Anthropocene Series: Politik – Economics – Society –Science (2016)

No	Author/editor	Title (published, in press, rest in in preparation)
1	Crutzen, Benner, Lax, Brauch (Eds.)	Paul J. Crutzen: The Anthropocene—A New Phase of Earth History: Impacts for Science and Politics
>2	**Maja Göpel**	**The Great Mindshift: How a New Economic Paradigm and Sustainability Transformations go Hand in Hand**
3	Audley Genus (Ed.)	Sustainable Consumption: Design, Innovation and Practice
> 4	**Brauch, Oswald Spring, Bennett, Serrano Oswald (Eds.)**	**Addressing Global Environmental Challenges from a Peace Ecology Perspective**
>5	**Oswald Spring, Brauch, Serrano Oswald, Bennett (Eds.)**	**Regional Ecological Challenges for Peace in Africa, the Middle East, Latin America and Asia Pacific**
6	M. Laura Vazquez Maggio	Mobility Patterns and Experiences of the Middle Classes in a Globalizing Age: The Case of Mexican Migrants in Australia
7	Tamer M. Qarmout	Delivering Aid Without Government: International Aid and Civil Society Engagement in the Recovery and Reconstruction of the Gaza Strip
8	David Curran	More than Fighting for Peace? The Role of Conflict Resolution in Training Programmes for Military Peacekeepers
9	Heather Devere - Kelli Te Maihāroa - John Synott (Eds.)	Peacebuilding and the Rights of Indigenous Peoples Experiences and Strategies for the 21st Century

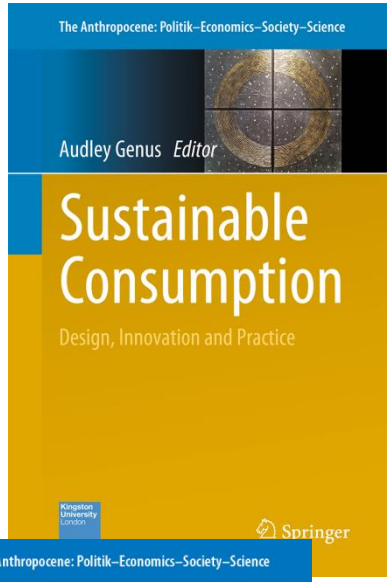
8.1. The Anthropocene Series: Politik – Economics – Society –Science (2016)

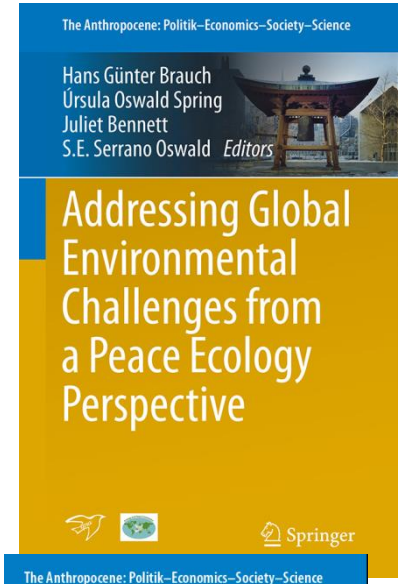
No.	Author/editor	Title
10	Michael Thomas	The Securitization of Climate Change: Australian and United States' Military Responses (2003 - 2013)
11	Zerin Savasan	Paris Climate Agreement: A Deal For Better Compliance? Lessons Learned from the Compliance Mechanisms of the Kyoto and Montreal Protocols
12	Lydia Gitau	Trauma-sensitivity and Peacebuilding: Considering South Sudanese Refugees in Kakuma Refugee Camp in Kenya
13	Eleonore Emkic	From Segregation to Positive Sustainable Peace: Reconciliation and Education in Bosnia and Herzegovina
14	Erşahin-Kapur-Akça-Namlı-Erdoğan (Eds.)	Carbon Management, Technologies, and Trends in Mediterranean Ecosystems
15	Mohan Jyoti Dutta	Imagining India in Discourse: Meaning, Power, Structure
16	Imtiaz Ahmed	People of Many Rivers – Tales From the Riverbanks

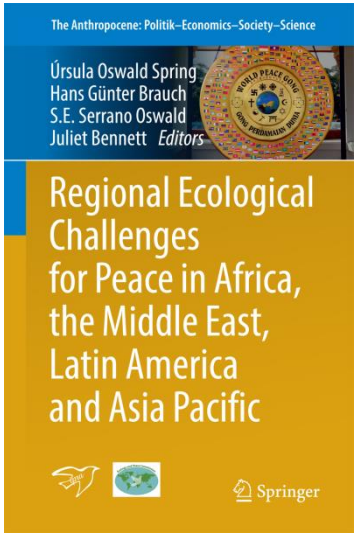
8.2. Goals of Anthropocene Series

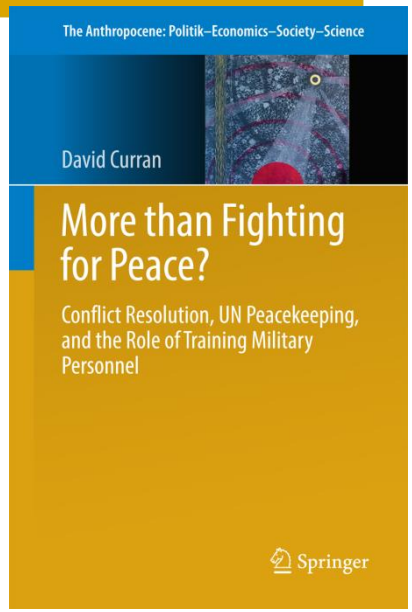
- This peer-reviewed scientific book series will address this very long-term and severe transition process, where the cause of the change and its potential violent societal consequences are no longer the '*other*' nation, ethnic, religious or political group, but '*we*': "we are the threat" and only *we* as part of *humankind* can offer a remedy by containing the causes and addressing, facing and coping with the consequences.
- This book series will review and analyse selective societal consequences of this fundamental change in earth history and the political, economic, societal and scientific discourses and policy-oriented societal debates on i) achieving the goal of 'sustainable development', ii) creating processes of 'sustainability transition', iii) the need for 'a new contract for sustainability', iv) the need for a paradigmatic change in world view (a scientific revolution) towards sustainability, or even v) the need for a 'sustainability revolution'.
- The key actors for bringing about such a change are:
  - 1) *Politik* in its three distinct meanings of 'politics' (process), 'policy' (field, area) and 'polity' (legal and institutional framework);
  - 2) *Economics* (as the field, actor and process),
  - 3) *Society* (as the innovative groups and processes), and
  - 4) *Science* as the source of technical innovation and societal and philosophical reflection.
- All books in this series range from 55,000 to 250,000 words, and are published as printed books in softcover and as eBooks, and are also available as individual chapters.
- All members of **academic institutions globally that subscribe to the relevant book package of SpringerLink** have free access to these eBooks and may obtain *MyCopy* <http://www.springer.com/ librarians/e-content/mycopy?SGWID=0-165802-0-0-0> at a highly discounted price of 25 $/€ (including shipping).

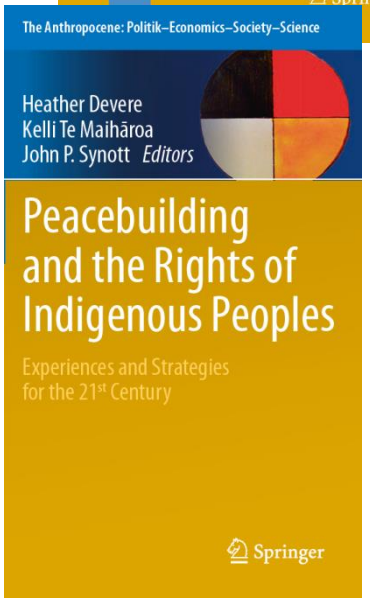
8.3. The Anthropocene: Politik – Economics – Society – Science (APESS): 15 titles (2016)

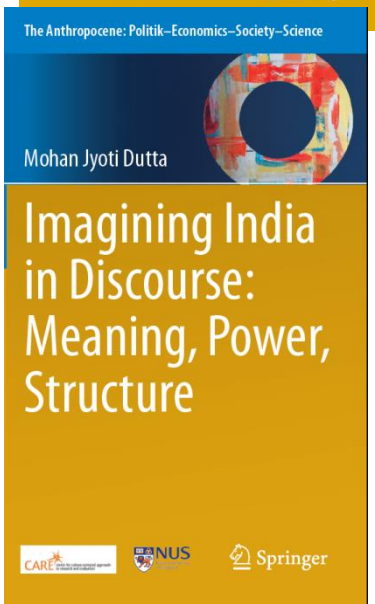






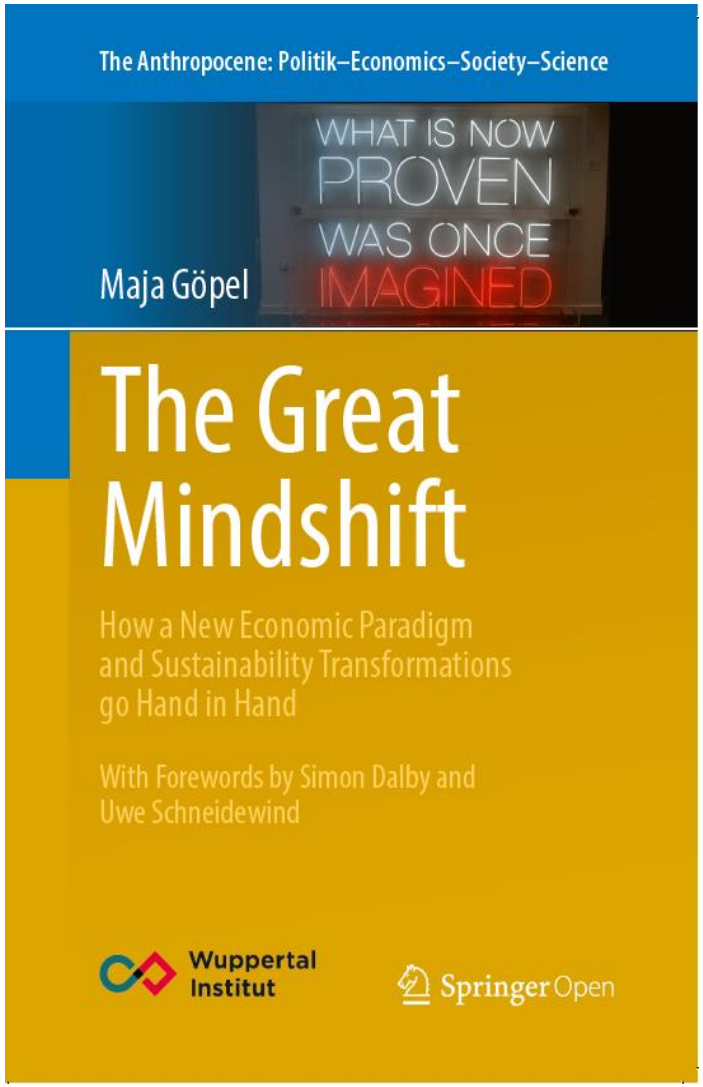






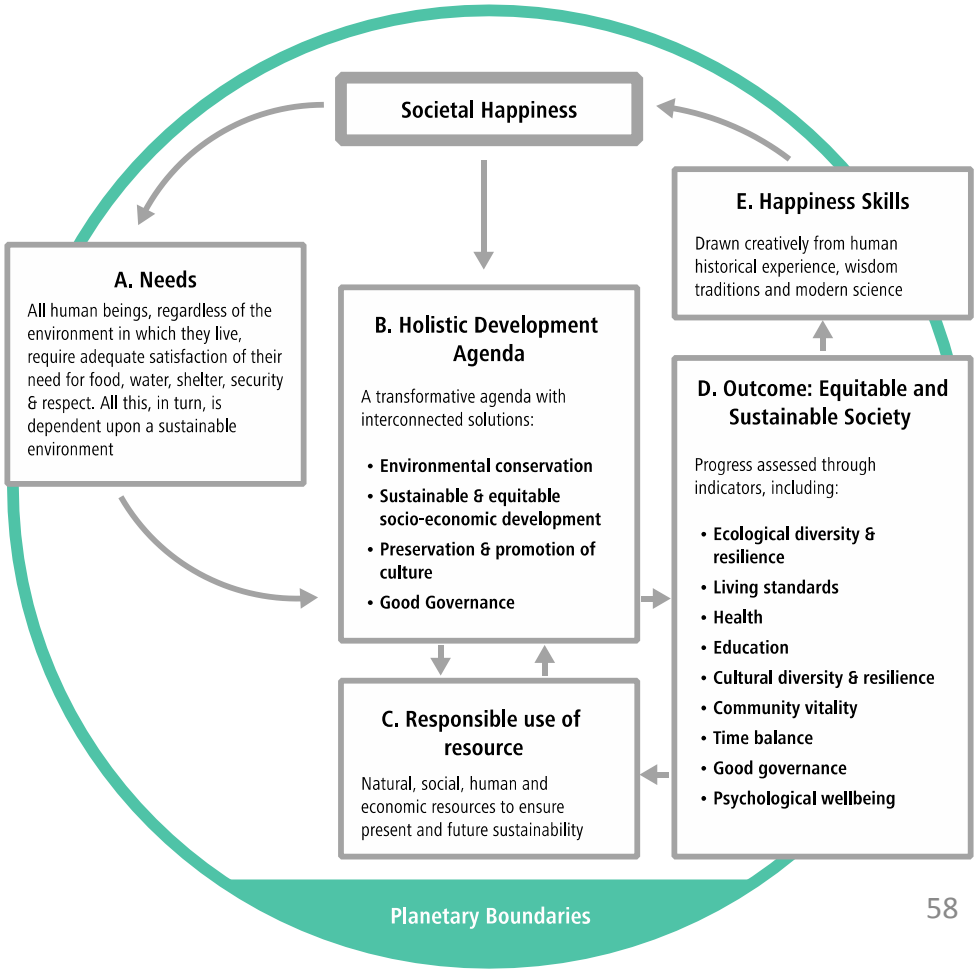
8.4. APESS 2: Maja Göpel: The Great Mindshift:

How a New Economic Paradigm and Sustainability Transformations go Hand in Hand



Recoupling Economic Systems.

Imaginaries of future sustainability paradigm



8.5. APESS 3: Audley Genus (Ed.): Sustainable Consumption:

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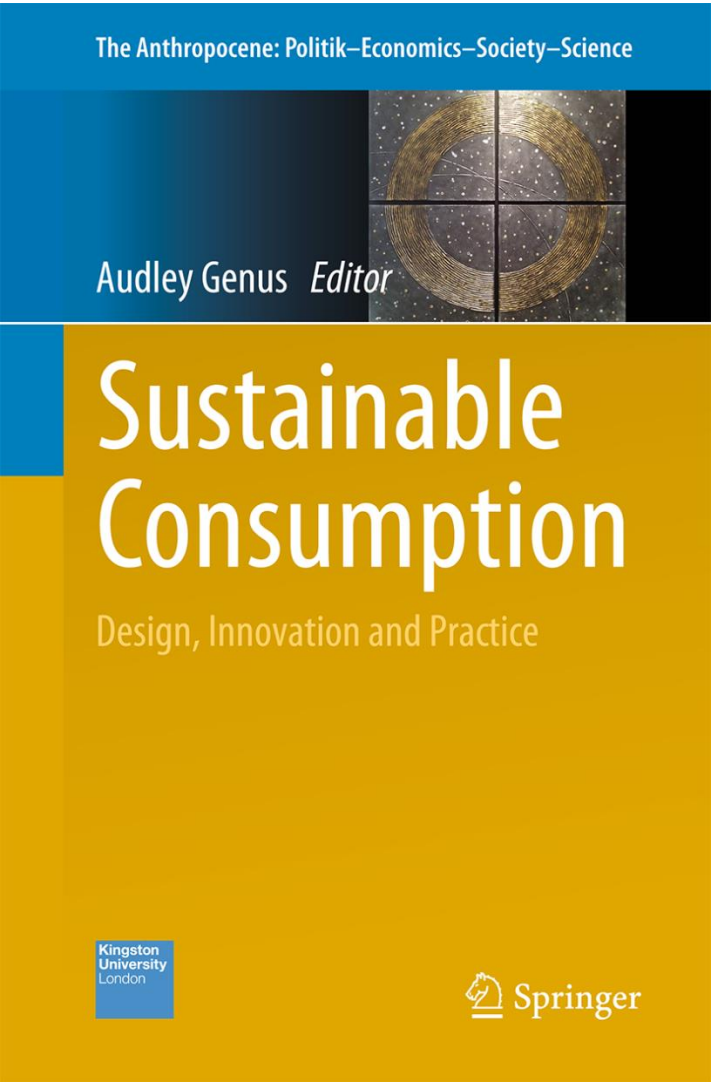

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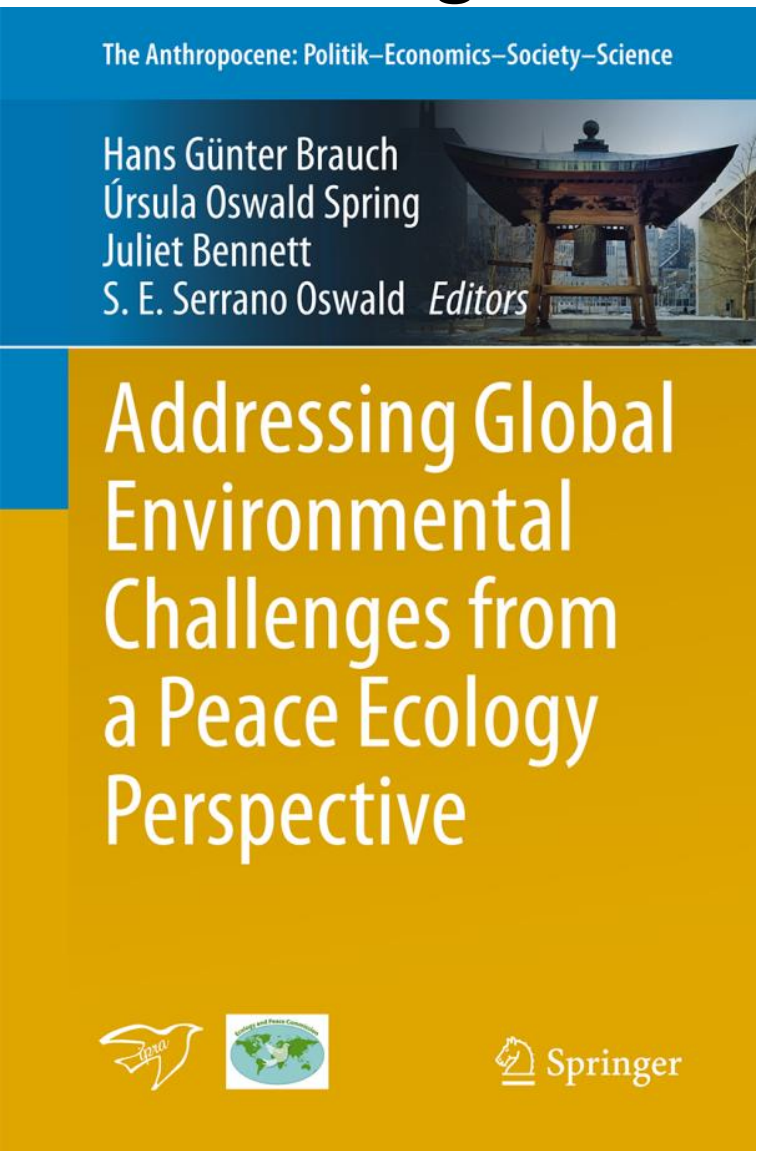

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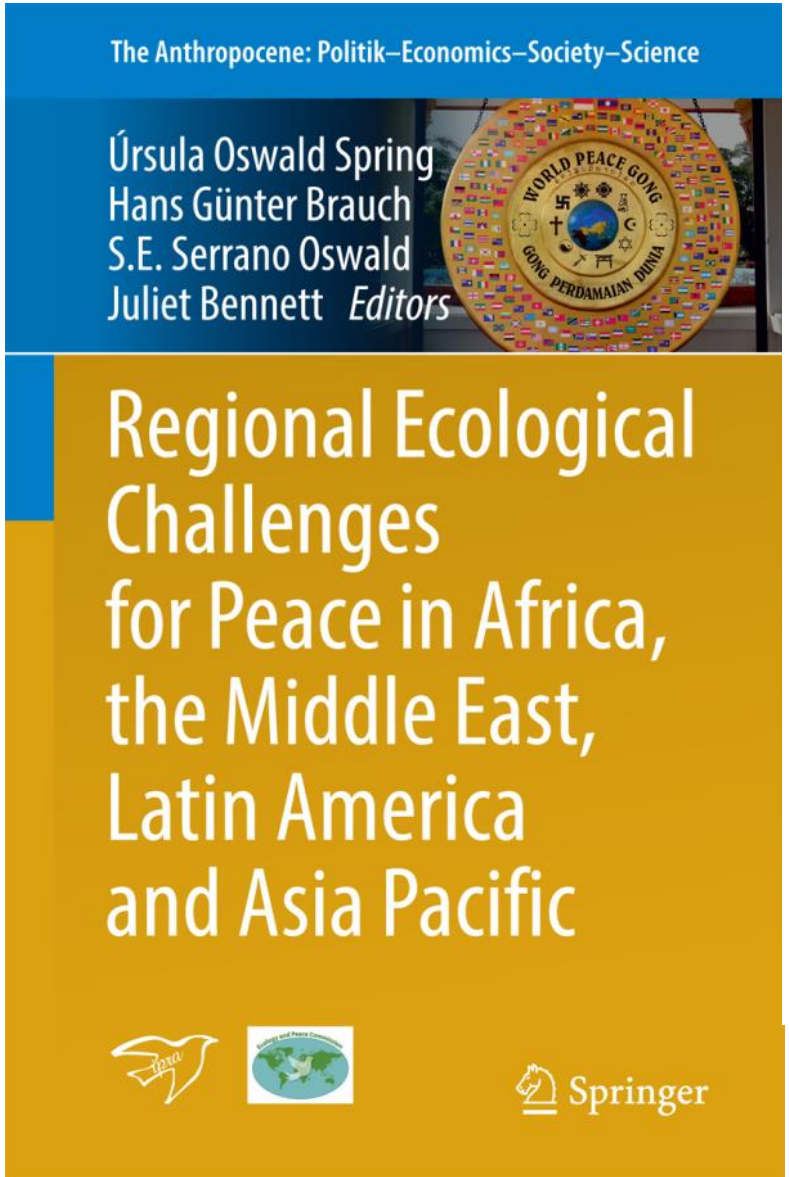

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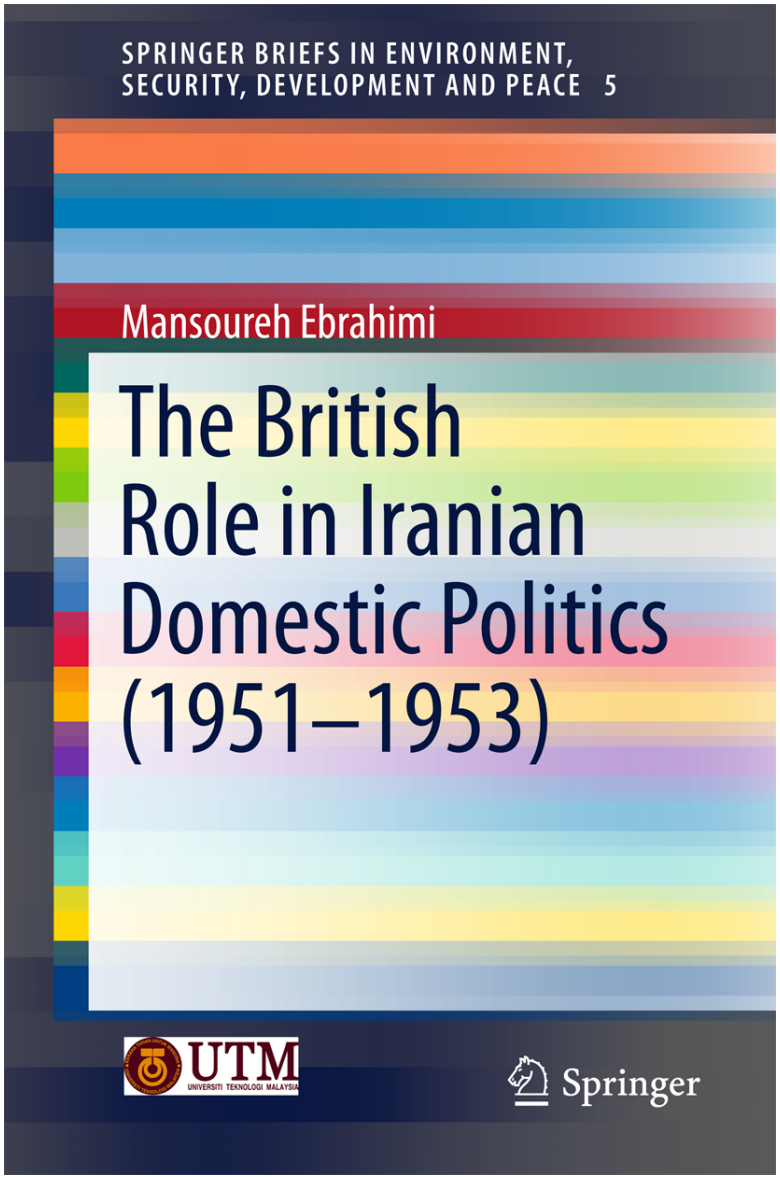
9 SpringerBriefs in Environment, Security, Development and Peace (ESDP): 28 titles

9.1 ESDP-05: Mansoureh Ebrahimi: *The British Role in Iranian Domestic Politics (1951-1953)*



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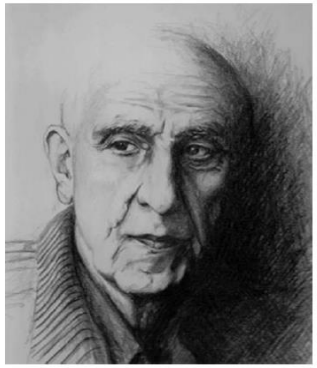

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- To contribute to human capital development by providing quality education;
- To provide leadership and contribute through research and innovation;
- To achieve a desirable image and branding that fulfils the requirements of stakeholders; and
- To contribute to society through community engagement and outreach.

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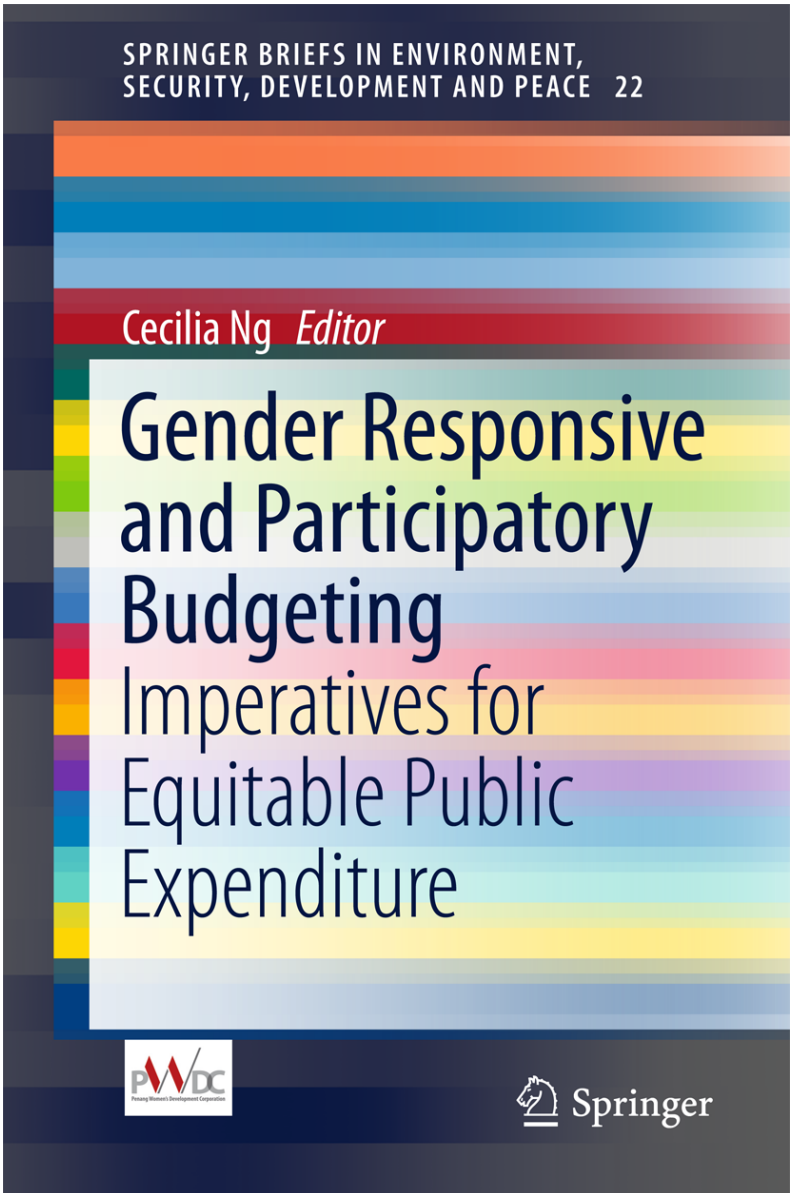

9.3 Springer Briefs on Pioneers in Science and Practice (PSP): since 2012: 34 titles

9.4. Pioneers in Arts, Humanities, Science, Engineering, Practice (PASEP) 14 vol. in print

10. Post Retirement Transformation: From Author to Editor and Promoter of Scientific Themes

- My own role: Political Scientist with PhD and habilitation who taught as a PD at FU Berlin in English under the exploitative conditions as a part of the scientific elite is treated in Germany
- Edited two books on Cliamte and Energy Politik with Springer in 1996 and 1997 in German, only publisher that was offering a contract
- Since 2003: Hexagon Series (today 13 vol.): success story; vol. IV: Facing with Global Environmental Change: more than 200.000 chapter downloads in 4 years.
- Since 2012 (early retirement): Springer Briefs (up to 55.000 words)
  - ESDP: Peer reviewed
  - PSP: Anthologies
- Since 2016: 2 new bigger Series (more than 55.000 words)
  - APESS: (extended ESDP)
  - PAHSEP: (extended PSP)

10.1. Thematic Agenda-Setting

- **After publication success of my books on climate (1996) & energy policy (1997) I accepted the invitations of Springer prior (2002) after my retirement (2012) as a political scientist to edit 5 English language book series:**
- **Three peer-reviewed book series:**
  - **Hexagon Book Series: big size, hardcover, handbooks**
  - **Springer Briefs on ESDP: softcover up to 130 pages (55.000 words)**
  - **The Anthropocene: Politik – Economics – Society –Science**
- **The anthologies honoring the lifelong achievements of eminent scientists and practitioners above 70**
  - **Springer Briefs on PSP: softcover up to 130 pages (55.000 words)**
  - **Pioneers in Arts, Humanities, Science, Engineering, Practice (PAHSEP): hardcover above to 130 pages (55.000 words)**

Contact Details

- **Hans Günter Brauch**, Dr., PD (Adj. Prof.), Free University of Berlin (ret.); chairman of Peace Research and European Security Studies (AFES-PRESS); editor of five English language book series published by SpringerNature; works on peace, security and environment.
  - Websites: <http://www.afes-press.de/> & <http://www.afes-press-books.de/>
  - Email addresses: <brauch@afes-press.de>
- **Hexagon-Series: <http://www.afes-press-books.de/html/hexagon.htm>**
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