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Securitizing Climate Change

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Abstract

Since 1988, global climate change is on the agenda of international relations. With the establishment of the IPCC (1988), the adoption of the UNFCCC (1992) and the Kyoto Protocol (1997) climate

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change was politicized. In 2007 it became a global security concern. This paper uses the 'securitization approach' by the Copenhagen School to map the framing of climate change as an international, national and human security issue in the scientific and policy community. With the release of the Fourth Assessment Report during 2007, the IPCC has indirectly become a securitizing actor addressing its urgency for humankind that requires extraordinary policy responses. Three EU countries put climate change as a security threat on international agendas: in April 2007 the UK introduced it to the UN Security Council, in June 2007 Germany put it on the agenda of the G-8 meeting and of the European Council requesting from the Commission and The Council a paper on climate change and international security that was released in 2008. Greece put climate change on the agenda of the Human Security Network during the 10th ministerial in May 2008 in Athens. This securitization move reached a global audience as has been documented in public opinion polls.

Keywords: securitization theory, global climate change, IPCC, UN Security Council, G-8, Human Security Network, UK, Germany, USA, Greece.

1. Introduction

The thesis of this paper is that the year 2007 has been a turning point in the process of *securitization*[2] of questions of *global climate change* (GCC) when several of the highest national policy-makers and high-level fora (UN Security Council) and officials of international organizations addressed global warming (cause) and climate change (effect) as a major objective security danger and subjective security concern that may lead to internal displacements, forced distress migration, as well as crises and conflicts.

This emerging scientific discourse, policy debate and political process of *securitization* of GCC focuses on the environmental dimension of security, especially on the complex interacttion between human beings and humankind as causes, triggers, and victims of the societal consequences of this anthropogenic change. Thus, the *securitization* of GCC issues is also closely linked to different referent objects of international, national, and human security.

With the *securitization* of GCC the focus of analysis is on the process of scientific and political agenda-setting, and prioritization of nature-societal issues during the past 20 years. While in 1987, issues of GCC were still primarily emerging scientific problems for climate specialists, by 2007 after intensive processes of *scientization*, *politicization* and *securitization* global warming and climate change have moved to the top of the policy agenda as the most urgent security dangers and concerns that require both urgent, stringent, and long-lasting policy responses with a fundamental transformation of the global energy system (decarbonization), but also of human values and consumer patterns.

Since the global financial and economic crisis became fully evident in autumn of 2008, long-term issues of GCC and their security aspects have been temporarily replaced by short-term concerns of containing and overcoming the most severe global economic crisis since 1945. But these issues will re-emerge prior and after COP 15 of UNFCCC in Copenhagen in December 2009.

Why has this turning point towards a securitization of GCC occurred in 2007? Why did the most important and influential policy-makers, e.g. the heads of states and governments of the G-8 and the European Union, in key policy declaration ('speech acts'), declare climate change as an international and national security issue? What purpose is this securitization of climate change to achieve, and who will be empowered to address and to respond to this new urgent security concern? [3]

[2] The theory of securitization has been developed by Ole Wæver (1995. 2008, 2008a) and the Copenhagen school (Buzan/Wæver/de Wilde 1998; Wæver/Buzan/de Wilde 2008).

[3] The author is grateful to Ole Wæver, University of Copenhagen, for his useful comments to a presentation of an earlier version at the 49th ISA convention in San Francisco on 26 March 2008.

In responding to these questions, this paper will introduce GCC as a security issue in the Anthropocene, and briefly outline the theory and method to be used below in the context of different models on the complex nature-society interactions (part 2) before the emerging process of securitization of climate change (part 3), and the indirect role of the IPCC as a new 'securitizing actor' are examined. It will then review the emerging policy debates on GCC issues since 1990 that have resulted first in a *politicization* and in the early 21st century in a progressive *securitization* that are addressed for climate change in the context of international, national, and human security scientific discourses and policy debates. So far this *securetization* of GCC has been largely policy driven.

The analysis of the *securitization* of GCC does not imply a causal analysis of the complex interrelationship of these factors in the past (climate, environmental history), presence and future (in the 21st century) nor a probability assessment of the relevant importance of these factors as causes, drivers, triggers or as independent, intervening or depending variables.

2. Global Climate Change as a Security Issue

The securitization of GCC issues occurs on the background of a third major cause for a reconceptualization of security that fundamentally challenges the prevailing Hobbesian security thinking in international relations and in security studies (Kolodziej 2005), and also of representatives of critical security studies (Booth 2007; Booth/Wheeler 2008) but also of people-centred approaches (Thakur 2006; Picciotto/ Olonisakin/Clarke 2007) that have either ignored or downgraded the environmental dimension of international, national, and human security. The causes of GCC pose fundamentally different security threats, challenges, vulnerabilities, and risks for the international community, the state, and humankind (Brauch 2005, 2005a).

The enemy is us, not 'they', it is 'us', 'our consumptive behaviour' and 'our use of fossil fuels' (coal, oil, gas) and that of previous generations since the outset of the Industrial Revolution (ca. 1750) that has been accumulated in the atmosphere and has become the cause of a rapid anthropogenic climate change. For this new security issue traditional military strategies and power as well as armaments offer no credible policy response. As it is impossible to declare a 'war against climate change', in analogy to the 'war on terror', a 'militarization' of GCC to maintain 'our way of life' and indirectly to prevent others to achieve our per capita greenhouse gas emission levels or to enforce emission reduction targets with military means will be counterproductive.

According to the IPCC (2007: 2) greenhouse gases have increased from 280 ppm (parts per million) in the atmosphere in the year 1750 to 379 ppm in 2005. The projected increase until the year 2100 for six scenarios (SRES B1, AIT, B2, A1B, A2 and A1FI) is according to the Synthesis Report of the IPCC's (2007c: 45) Fourth Assessment Report (AR4) "about 600, 700, 850, 1250 and 1550ppm, respectively." This projected increase is far above the natural variation in temperature changes that has been measured for the changes in climate for the past ten millennia. According to the IPCC this has resulted in an increase of the average temperature over land during the 20th century of 0.8°C.

The security danger posed by hydro meteorological hazards has killed ca. 1.5 million people and affected more than 5 billion people between 1974 and 2003 (Guha-Sapir/Hargitt/Hoyois 2004), and the trend has been rising both in number and intensity, although not exclusively due to anthropogenic climate change, and it has been projected that such events will be very likely during the 21st century (IPCC 2007: 8). In Bangladesh between 1947 and 2001 about 1 million people died due to cyclones, floods, and drought (Brauch 2002: 83).

But these hazards have also caused severe damages in OECD countries. The heat wave that hit Western Europe in August 2003 killed more than 72,210 persons[4] and caused an economic damage of ca. 10 billion Euros for agriculture due to a major decline in food yield. Hurricane Katrina that touched land on 29 August 2005, killed according to official statistics some 1,833 persons, and became thus the fourth most deadly hazard in the USA since 1900. It affected about 500,000 people and caused economic damages amounting to about US$125 billion, thus becoming the most costly natural hazard in US history until 2008 (Brauch 2008d).

However, in many contemporary security analyses (e.g. Kolodziej 2005; Thakur 2006), the environment and hydro-meteorological hazards have not been discussed as security dangers and concerns, and have thus been excluded from 'securitization'. Many American security experts have so far totally ignored the securitization theory and the contributions of critical security studies. According to Tierney and Maliniak (2005: 58-64): "American scholars are a relatively insular group who primarily assign American authors to their students."

2.1 Security Policy in and for the Anthropocene

According to Clark, Crutzen, and Schellnhuber (2004: 1): "we live today in what may appropriately be called the 'Anthropocene' – a new geologic epoch in which humankind has emerged as a globally significant – and potentially intelligent – force capable of reshaping the face of the planet" (Crutzen 2002). In response to the gradual understanding of the anthropogenic contribution to climate change in the Anthropocene the normative concept of 'sustainable development' (Brundtland 1987) has been adopted in Rio de Janeiro in 1992 at UNCED and become a key policy goal of UN Secretary-General Kofi Annan's *Millennium Report* (2000), and at the WSSD in Johannesburg (2002).

The Amsterdam Declaration (2001) established the *Earth System Science Partnership* (ESSP) that contributed to a comprehensive earth system science research programme by formulating 23 basic analytical, normative, operational, and strategic questions (Leemans/Rice/Henderson-Sellers/Noone 2010).

Therefore, a proactive security policy in the Anthropocene that addresses the *Global Challenges for Leviathan* (Cerutti 2007) must be science- and knowledge-based, and requires a different knowledge from what national intelligence agencies and the military establishment have offered policy-makers, and it calls also for different goals, strategies, and means than traditional security experts trained in the Hobbesian tradition of security studies can offer.

Such a new security policy in and for the Anthropocene necessitates for the new security dangers posed by GEC a new policy framework that integrates both the experience of past nature-human interactions as well as the scenario- and model-based projections of the probable societal outcomes of future trends. This emerging security policy makes a conceptual thinking for a new peace policy in the early 21st century necessary that combines the goals of 'sustainable development' with a 'sustainable peace' (Oswald 2008) to cope with the 'survival dilemma' of humankind (Brauch 2008c; Brauch/Oswald 2009_99).

2.2. Securitization Theory

So far, the emerging policy debate on the security implication of GEC has not been guided by these fundamental scientific considerations on a sustainability science for the Anthropocene. The 'securitization theory' developed by Wæver (1995, 1997) and the Copenhagen school (Buzan/Wæver/de Wilde 1998) offers a theoretical approach for a conceptual mapping and analysis of the policy declarations ('speech acts') on the security impacts of climate change. Wæver (1997: 221) argued that by declaring a development a security problem, or as an exis-

[4] See: CRED: "Extreme temperature disasters", in: *CRED Crunch*, No. 9, June 2007; at: < http://www.emdat.net/documents/Cred%20Crunch%209.pdf>. According to Munich Re 35,000 people died and agricultural losses reached 15 billion (Stern 2006. 150-151).

tential threat to sovereignty, the 'state' has been the major securitizing actor. "By saying 'security' a state-representative moves the particular case into a specific area; claiming a special right to use the means necessary to block this development." Wæver (1997: 224) suggested

> "that a major focus of 'security studies' should be the process of securitization and de-securitization: when, why and how do elites label issues and developments as 'security problems'? when, why and how do they succeed and fail respectively? What attempts are made by other groups to press securitization on the agenda? And what are the cases of attempts to keep issues off the security agenda, to move below the security threshold or even to securitize issues that have been securitized?

This first presentation was further developed by Buzan, Wæver and de Wilde (1998: 23-26) when they introduced 'securitization' as being "above politics" and as a "more extreme version of politicization". They argue that any public issue could be located in a spectrum between *nonpoliticized* (no state action is needed), *politicized* (requiring government decision and resources), and *securitized* (existential threat that requires emergency measures). They state that the *securitization* e.g. of environmental issues could also be enacted by non-state actors in declaring an issue as an existential threat that requires utmost priority that entitles an actor to use extraordinary means. "'Security' is thus a self-referential practice, because it is in this practice that this issue becomes a security issue – not necessarily because a real existential threat exists because the issue is presented as such a threat." They argue that 'securitization' is the result of an "intersubjective establishment of an existential threat with a saliency sufficient to have substantial political effects". This could be studied by focusing on "discourse and political constellations". But a discourse that presents "something as an existential threat to a referent object does not by itself create securitization – this is a securitizing move, but the issue is securitized only if and when the audience accepts it as such". Securitization is fulfilled "by existential threats that legitimize the breaking of rules".

According to Buzan, Wæver, and de Wilde (1998: 26) a "successful securitization thus has three components: existential threats, emergency action, and effects on interunit relations by breaking free of rules". This implies for the analyst not "to assess some objective threats" but to "understand the shared processes of constructing a shared understanding of what is to be considered and collectively responded to as a threat". More recently, Wæver (2008a: 582) summarized securitization as:

> the discursive and political process through which an intersubjective understanding is constructed within a political community to treat something as an existential threat to a valued referent object, and to enable a call for urgent and exceptional measures to deal with the threat. Other central concepts in the theory are 'referent object', 'securitizing actor', and 'audience'. The central idea of the theory is, that it is not up to analysts to try to settle the 'what is security?' question – widening to include the environment or narrowing to only military security – but more usefully one can study this as an open, empirical, political and historical question: who manages to securitize what under what conditions and how? And not least: what are the effects of this? How does the politics of a given issue change when it shifts from being a normal political issue to becoming ascribed the urgency, priority and drama of 'a matter of security'.

This securitization theory and the approach of the Copenhagen school on the widening of the security agenda and the deepening of the referent objects and actors has either been totally ignored (Kolodziej 2005) or critiqued by both representatives of narrow traditionalist and critical schools (Booth (2007: 163-169). Dannreuther (2007: 42-44) argues that "the securitization approach has provided the new 'security agenda' with a good potential theoretical base". But he also pointed to several shortcomings, its subjective epistemology, its separation of the realism of politics and security, and the Eurocentric focus of its research agenda.

Below the 'securitization approach' will be used to structure and analyse the policy debate on global climate change as a new subjective international, national, and human security concern whereby the 'securitizing actor' that produces the 'speech act' is not solely the nation state

(government representatives, politicians) but also a transnational epistemic community of primarily natural scientists (IPCC). The referent objects are not only the state and the international community but primarily individual human beings and humankind who are both the cause of global warming and the victims of climate change. However, both actors are not identical, what has created major new equity problems (Adger/Paavola/ Huq/Mace 2006).

From a narrow and 'state-centred' national security perspective the 'securitizing actor' and the 'referent object' remains the nation state (its top government officials, policy-makers and the political elite), while from a *wider* environmental and *deeper* 'people-centred' societal or human security outlook the scientific community has become a new securitizing actor, and the referent object are not any longer the state but the vulnerable people that will be hurt most by these newly emerging security issues.

2.3 Conceptual Mapping

Three methods for the analysis of the word, term and concept of security, and for its 'reconceptualization' have been distinguished: a) *etymology* (word, term, concept) of security, b) *conceptual history* (Koselleck 2006), and c) *conceptual mapping* (Brauch 2008: 34; 2008a: 65-67). In this paper, the third method is used to document how this concept has been applied – both in scientific discourses and policy debates – to issues of GCC to 'move' a scientific issue to the top policy agenda thereby legitimating extraordinary measures for coping with this new danger, and to document how this 'securitizing move' has been convincing a rapidly growing global audience to recognize and to approve the high costs of proactive adaptation and mitigation measures. Thus, this method is used to analyse the evolution of policy declarations (or 'speech acts') by scientists, policy analysts, and representatives of states and international organizations that have referred to the regional security impacts of GCC, especially in highly vulnerable regions (hotspots) with a high exposure, high social vulnerability, and a limited coping capacity being confronted with three impacts of global climate change: i) temperature increase, ii) sea level rise, and iii) increase in the number and intensity of natural hazards.

With this *securitization* of GCC, these security dangers and concerns have been given highest priority on the policy and security agenda to legitimate extraordinary and costly measures that require a progressive increase in energy efficiency and a decarbonization of the energy system by increasing renewable energy sources but without creating serious food security challenges that have already resulted in spring 2008 in several poor and food importing countries in violent food riots. The *securitization* of issues of GCC has thus become a policy tool for the justification of the allocation of significant public funds in terms of 'international' (in most EU countries), or 'national security (primarily in the USA) but also of 'human security' (in countries of the human security network).

2.4 Models for Nature – Human Interactions

The conceptual mapping of the *securitization* of issues of GCC documents the scientific discourse and the policy debate on the security impacts of climate change. It does not argue whether past climate history reflecting the impacts of natural variability and not yet of anthropogenic climate change (Blümel 2009; Issar/Zohar 2009) resulted in violent conflicts and in the climate-induced collapse of civilizations, nor does it assess the probability of extreme societal outcomes: internal displacements, forced migration, crises and conflict constellations from anthropogenic climate change in the 21st century (Fagan 2000; 2004; Diamond 2005; Linden 2006; Zhang/Brecke/Lee/He/Zhang 2007; Scheffran 2008, 2010).

Various models have been developed to analyse the nature-human interactions of which only the author's PEISOR model will be outlined that was stimulated by the pressure and response models of OECD, UNCSD, the EEA and by the debates on environmental security (Homer-

Dixon/Deligiannis 2009; Mason/Hagmann/Bichsel/Ludi/Arsano 2009) and on natural hazards. The PEISOR model (Brauch 2005, 2006) combines five stages:

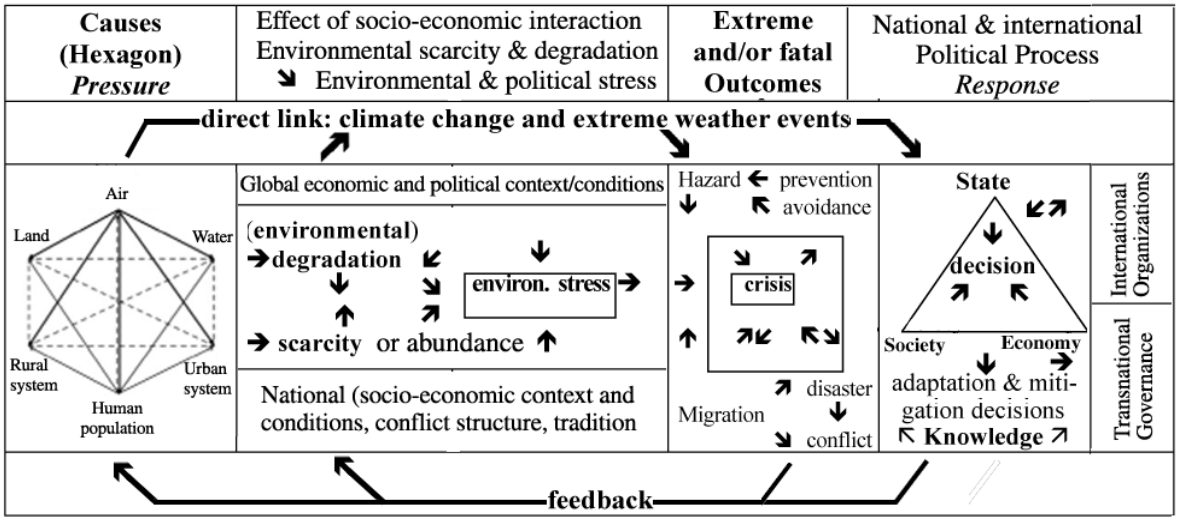
- *P* (*pressure*) refers to six drivers of global environmental change (*survival hexagon*);
- *E* to the *effects* of the linear, non-linear or chaotic interactions within the 'hexagon' on environmental scarcity, degradation, and stress;
- *I* to extreme or fatal *impacts* of human-induced and climate-related natural hazards (storms, flash floods, flooding, landslides, drought);
- *SO* to *societal outcomes*: internal displacement, migration, urbanization, crises, conflicts, state failure, and
- R to *response* by the society, the business community, the state where both traditional and modern technological knowledge can make a difference.

While hazards cannot be prevented, their impact in terms of deaths, affected people, economic and insured damages can be reduced by a combination of policies and measures that link protection with empowerment of the people to become more resilient.

Figure 1 refers in the first column under causes or pressure to six key factors contributing to GEC, three supply or environmental factors (land, air, and water) and three demand or human factors (population living and working in rural or urban systems). These six factors interact in a non-linear or sometimes chaotic way, and pose pressure on the political and societal context where they may trigger, impact or affect socio-economic interactions either causing or contributing to anthropogenic e*nvironmental degradation* (of water, soil, air) or *scarcity* (of water and soil). The interaction among these two processes may result in *environmental stress* that can cause various extreme and in a few cases even fatal impacts.

However, there may also be a direct impact of climate change resulting in an increase in hydro-meteorological hazards. This aspect has only marginally been addressed in the initial stages of environmental security research (Dalby/Brauch/Oswald 2009) but it is key to the debate on the *securitization* of climate change. Environmental stress may increase the impact of hazards (especially for those with a high degree of social vulnerability) and cause or contribute (with natural hazards and conflicts) to internal displacement, urbanization, and to transboundary forced migration.

Figure 1: PEISOR-Model. **Source:** © Brauch (2005a: 16, 2007h: 28).



Whether these factors result in domestic crises, disasters, and in a worst case in violent conflicts, or whether these can be avoided, depends on many specific factors and activities resulting from the interaction between the three actors representing the state, the society, and the business community, but also on the use of both traditional and modern technical and orga-

nizational knowledge and knowledge-based response strategies by governments and international organizations and transnational societal and economic organizations (governance).[5]

2.5 Model for the Analysis of Climate Change and Armed Conflict

Bulhaug, Gleditsch, and Theisen (2008) assessed the peer-reviewed primarily statistical literature on "Implications of Climate Change for Armed Conflict", distinguishing among three physical effects causing a reduction in livelihood and several catalysts (migration, political and economic instability, social fragmentation, and inappropriate response) that may lead to armed conflict. However, their conflict definition excludes small-scale violence, e.g. tribal clashes between herders and resident farmers, mass protests, e.g. in the Sahel zone to which many case studies refer (Kahl 2003, 2006; Suliman 1993, 1999), as well as food riots due to multiple causes.[6]

Given the lack of both structured, focused, and comparable cases studies (George/Bennett 2005) addressing the complex causal chain and non-existing statistical research based on a large number of cases, it is premature to conclude whether and which causal linkages have existed between physical and social effects of climate change and their impacts on internal displacement, distress migration, domestic crises, and conflicts. Neither comparative case studies nor statistical research can analyse potential conflict constellations in vulnerable hotspots and in a world where the average annual temperature has increased by 2°C (certain), or 4°C (probable) or even 6°C (possible under business as usual scenarios) by the year 2100.

This requires both different methods (modelling, simulation, and scenario analysis) of non-linear interactions that may lead to tipping points of the climate system. "In response to anthropogenic climate forcing, a small perturbation at a critical point could qualitatively alter the future fate of the system. Such changes could be triggered this century and would undergo a qualitative change within this millennium." Lenton, Held, Kriegler, Hall, Lucht, Ramsdorf, and Schellnhuber (2008: 1186) pointed to the melting of the Arctic sea-ice, rapid changes in the Greenland and in the West Antarctic ice sheet, a shutoff of the Gulf Stream (Atlantic Thermohaline Circulation), changes in the El Niño-Southern Oscillation (ENSO), in the Indian summer monsoon, in the Sahara/Sahel and West African monsoon, a drying of the Amazon basin and changes in boreal forests. These possible abrupt climate changes could trigger serious consequences for international and national security (Schwartz/Randall 2003).

While the regions where presently conflicts cluster and the hotspots with significant security impacts of climate change partly overlap, the regional impacts of possible tipping points in the climate system may seriously affect all parts of the globe, especially also the North Atlantic region, including Northern and Central Europe.

2.6 Securitization of Societal Outcomes and Policy Response

While the PEISOR model focuses on a sequence of *pressures* resulting from the interaction of natural and social system components, their *effects* on the socio-economic-political context, as well as on their *impacts*, *societal outcomes* and policy *responses*, the vulnerability framework systematically couples the nature-society systems from the perspective of hazard impacts (relationship between exposure, vulnerability, and resilience). In the interaction between the state, society, and the economic sector, multidisciplinary knowledge creation and application

[5] This model has been developed further in the UNCCD Issue Paper 2 by Brauch/Oswals Spring (2009).

[6] In their extensive bibliography, Bulhaug, Gleditsch, and Theisen (2008: 41-49) did not include scientific reports commissioned by governments (BMU 2002), by scientific advisory groups of governments (Stern 2006; WBGU 2007, 2008), and by international organizations (IPCC 2001, 2007; UNDP 2007/2008; OECD 2008). They argued that "the public debate on the security implications of climate change have been dominated by NGO reports, national security, and statements by national and international public officials". They noted an overlap between present conflict-ridden countries and regions with serious projected climate change impacts that also partly overlap with the hotspots with projected climate change impacts on conflict constellations (WBGU 2008: 4).

for sustainability and for coping with climate change impacts plays a key role for supporting the coping activities of state, societal, and economic decision-makers.

The model suggested by Bulhaug, Gleditsch, and Theisen (2008) on possible pathways between climate change impacts and an increased risk of armed conflict reduces the analysis of GCC to two physical effects of sea level rise and increase in hydro-meteorological hazards, and it includes an increasing resource scarcity. It did not discuss the security impacts of different temperature increase scenarios, of different climate conflict constellations (WBGU 2008), and nor did it reflect on geographic hotspots and tipping points. The complex interactions between the six pressures of GEC (figure 1) and the complex interactions between climate change, desertification, and biodiversity loss (MA 2005) were not addressed.

For the analysis of the process of *securitization* of GCC, the claims that were made during the 'securitizing move' must not be supported by peer-reviewed social science research. But the *securitization* of GCC has already triggered a political demand for systematic multi-, inter-, and transdisciplinary research, and monitoring of these claimed causal or probabilistic linkages to build up knowledge that will support policies to recognize (early warning of climate related security risks) and to cope with these security dangers in a proactive way before they lead to violent conflicts. Thus, the claimed linkage between climate change and conflicts has been an additional legitimating component or the 'securitizing move' with regard to GCC.

3. Securitizing Global Environmental Change

The year 2007 was a turning point in the reconceptualization of security when the *Intergovernmental Panel on Climate Change* (IPCC) released its *Fourth Assessment Report* (AR4) between February and November 2007 in Paris (WG I on the *Physical Science Basis***,** IPCC 2007), in Brussels (WG II on the *Impacts, Adaptation and Vulnerability*, IPCC 2007a), in Bangkok (WG III report on *Mitigation of Climate Change***,** IPCC 2007b), and in Valencia (*AR4 Synthesis Report*, IPCC 2007c).

These four reports set the stage for a global debate on the security implications of three different climate-induced worlds: a) of a global average increase of temperature up to 2°C by 2100 which the European Union hopes to achieve; b) of a global average increase of temperature up to 4°C by 2100; or c) of a global average increase of temperature up to 6°C by the end of this century which would seriously impact on the well-being and survival of humankind, and thus also on security policy. In addition, the projected increase in the sea level will seriously threaten delta and coastal regions, while the projected increase in the number and intensity of hydro-meteorological hazards may result in an increase of human victims, persons affected, and in economic damages. The projected impacts of temperature increase, sea level rise, and natural hazards will pose severe societal and political challenges for the affected regions and countries that can possibly lead to multiple security threats, challenges, vulnerabilities, and risks that can force people to migrate, to protest and rebel, and in the worst cases may lead to small-scale violence and possibly also to armed resource conflicts.[7]

On 17 April 2007, the United Nations Security Council addressed for the first time climate change as an international security issue[8] and from 29 July to 2 August 2007 the UN General

[7] See BMU 2002; WBGU 2007, 2008; Buhaug/Gleditsch/Theisen 2008; Raleigh/Jordan/Salehyan 2008.

[8] See: "Press Conference by Security Council President, 4 April 2007"; at: <http://www.un.org/News/briefings/docs //2007/070404_Parry.doc.htm>; [8] Bloomberg news: "UN attacks climate change as threat to peace", in: *International Herald Tribune,* 18 April 2007: 2; UN Security Council, SC/9000, 5663rd meeting, 17 April 2007: "Security Council holds first-ever debate on impact of Climate change on peace, security, hearing 50 speakers"; at: <http://un.org/news/press/ docs/2007/ sc9000.doc.htm>; Reuters: "UN Council Hits Impasse over Debate on Warming", in: *New York Times,* 18 April 2007; Edith M. Lederer: "Security Council Tackles Climate Change", in: *Washington Post,* 18 April 2007.

Assembly held a special thematic debate on *Climate Change as a Global Challenge*.[9] In June 2007, at the G-8 meeting in Heiligendamm (Germany) the heads of states and/or governments agreed … "in setting a global goal for emissions reductions" that they will "consider seriously the decisions made by the European Union, Canada and Japan which include at least a halving of global emission by 2050".[10] Thus, climate change was increasingly addressed as a new objective security danger and subjective security concern for the livelihood and survival of humankind in this century.

On 12 October 2007, the Norwegian Nobel Committee awarded the Nobel Peace Prize to both the IPCC and to Al Gore "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change". In a press release the Committee justified its choice:

> Extensive climate changes may alter and threaten the living conditions of much of mankind. They may induce large-scale migration and lead to greater competition for the earth's resources. Such changes will place particularly heavy burdens on the world's most vulnerable countries. There may be increased danger of violent conflicts and wars, within and between states. … By awarding the Nobel Peace Prize for 2007 to the IPCC and Al Gore, the Norwegian Nobel Committee is seeking to contribute to a sharper focus on the processes and decisions that appear to be necessary to protect the world's future climate, and thereby to reduce the *threat to the security of mankind*. Action is necessary now, before climate change moves beyond man's control.

On 10 December 2007, in his acceptance speech for the IPCC, its chairman, Rajendra Pachauri noted that this award is

> an acknowledgement of three important realities, which can be summed up as:
> 1) The power and promise of collective scientific endeavour, …
> 2) The importance of the role of knowledge in shaping public policy and guiding global affairs for the sustainable development of human society.
> 3) An acknowledgement of the threats to stability and human security inherent in the impacts of a changing climate and, therefore, the need for developing an effective rationale for timely and adequate action to avoid such threats in the future.

He referred to the complex linkage between climate change and its severe impacts on some of "the poorest and the most vulnerable communities in the world" that "see a decline in their economic condition, with a loss of livelihoods and opportunities to maintain even subsistence levels of existence". But due to its mandate, the IPCC did not assess "how conflicts inherent in the social implications of the impacts of climate change could be avoided or contained". Pachauri suggested that "it would be particularly relevant to conduct in-depth analysis of risks to security among the most vulnerable sectors and communities impacted by climate change across the globe". He defined peace "as security and the secure access to resources that are essential for living" where climate change affects some populations to access a) clean water (*water security*), b) sufficient food (*food security*), c) stable health conditions (*health security*), d) ecosystem resources (*environmental* or *ecological security*), and e) security of settlements (*urban security*). The knowledge – assessed by the IPCC – provides a basis for the analysis in the social sciences as to how "climate change will affect peace" and whether its impacts could become a source of conflict. Pachauri argued that "human ingenuity and strength are capable of meeting this challenge" by acknowledging "the importance of sustainable development as the path to peace and prosperity".

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[9] See: Chris Spence, edited by Pamela Chasek: "Summary Of The Informal Thematic Debate Of The UN General Assembly on Climate Change as a Global Challenge"; at: < http://www.iisd.ca/climate/unga/UNGA%20Climate%20Change%20briefing%20note.pdf>

[10] For the documents of the G 8 Meeting in Heiligendamm, Germany on 8 June 2007; at: < http://www.g-8.de/Webs/G8/_EN/G8Summit/SummitDocuments/summit-documents.html > and the chair's conclusions; at: < http://www.g-8.de/nsc_true/Content/EN/Artikel/__g8-summit/anlagen/chairs-summary,templateId=raw,property=publicationFile.pdf/chairs-summary>.

These three related events: a) the publication of the fourth IPCC Assessment Reports, b) the debates in the United Nations (Security Council and General Assembly), and the c) awarding of the Nobel Peace Prize to the IPCC have given climate change and its impacts a high political visibility to which Germany actively responded during its dual presidency of the EU and of the G-8, while the UK took the lead in putting this challenge on the agenda of the UN Security Council. Based on a report on *Security Risk Climate Change* of the *German Advisory Council on Global Change* (WBGU 2007, 2008) that was released to the G-8 summit, the German government proposed an EU strategy paper on the security impacts of climate change. In June 2007 the European Council instructed Javier Solana and the European Commission to draw up a report on the security side of climate change that was submitted on 10 March 2008 to the EU Council of Ministers, and to the European Council on 13-14 March 2008.

In its "Report on the Implementation of the European Security Strategy - Providing Security in a Changing World" the European Council approved on 11 December 2008 a statement (S407/08) that argued that "climate change can also lead to disputes over trade routes, maritime zones and resources previously inaccessible," and it called upon the Commission and the member states "to improve analysis and early warning capabilities" and to "step up our work with countries most at risk by strengthening their capacity to cope" for which "international co-operation, with the UN and regional organisations, will be essential."

Thus, during 2007 climate change has been addressed by a few governments and experts as a major security issue, and in this process of '*securitization*' of problems of GCC the IPCC has indirectly become a major 'securitizing actor' by upgrading climate change to an 'existential threat' to different referent objects from the international community (*global, international* and *regional security*), the state (*state* or *national security*), and humankind (*human* and *gender security*). Addressing GCC and GCC as a new security danger and concern reflects the fundamental reconceptualization of security in the Anthropocene. However, since the autumn of 2008, the global financial and banking crisis and the emerging global economic crisis has become the most urgent political, economic and security issue for the governments to address and has temporarily replaced climate change.

3.1 IPCC: Epistemic Community and Securitizing Actor?

A theoretical linkage between the burning of hydrocarbons and global warming was first postulated in 1896 by the Swedish physicist and chemist Svante Arrhenius (Bolin 2007: 3-8). But it took the scientific community until 1979 to recognize this linkage when the first world climate conference was organized by the *World Meteorological Organization* (WMO). Several scientific meetings followed during the 1980's that were carried out by the WMO in cooperation with the *United Nations Environment Programme* (UNEP) and the *International Council of Scientific Unions* (ICSU), and in 1985 participants from 29 countries warned for the first time of the danger of an anthropogenic climate change. After the publication of the Brundtland Commission Report (WCED 1987) UNEP and WMO added climate change to the agenda of the UN General Assembly (Bolin 2007: 40).

In the autumn of 1988, the US Reagan Administration put climate change on the policy agenda of the G-7 in Toronto where in June 1988 some 300 scientists and policy-makers at the "World Conference on the Changing Atmosphere, Implications for Global Security" suggested in their final declaration a reduction of CO_2 emissions by 20 per cent between 1988 and 2005 (Oberthür 1993). In November 1988, UNEP and WMO established the *Intergovernmental Panel on Climate Change* (IPCC) and in December 1988, at the suggestion of Malta (Bolin 2007: 49-51), the UN General Assembly declared the atmosphere as being "a common heritage of mankind" (GA/43/53), and two years later on 21 December 1990 the General Assembly set up the *International Negotiating Committee on Climate Change* (INC) with a mandate to negotiate the *United Nations Framework Convention on Climate Change* (UNFCCC) that was approved in June 1992 at the Rio Earth summit (UNCED). Five years

later with the adoption of the *Kyoto Protocol* (KP), the first binding quantitative emissions reductions were adopted that will be replaced by an emerging post-2012 climate change regime (Ott 2007; Aldy/Stavins 2007; Zedillo 2008).

Thus, since 1988 climate change has increasingly become an urgent policy issue and was thus 'politicized', and since the turn of the century climate change has gradually been perceived and discussed as an international (BMU 2002; WBGU 2007/2008), national (Schwartz/Randall 2003), and human security issue (Adger/Barnett 2005; Wisner/Fordham/Kelman/Johnston/Simon/Lavell/Brauch/Oswald Spring/Wilches-Chaux/Moench/Weiner 2007). In a similar vein, issues of water scarcity, degradation, stress, soil degradation, and desertification have first been politicized and then also securitized. Thus, facing global environmental change has increasingly been perceived and addressed as an emerging soft security issue.

During the past two decades, *global environmental challenges* have created an intensive public awareness to *fac*e this global environmental change and to *cope* with its consequences (Brauch/Oswald Spring/Mesjasz/Grin/Kameri-Mbote/Chourou/Dunay/Birkmann 2009). Since then, both the scientific discourse and the policy debates on GCC and on the reconceptualization of security were pursued by different scientific and policy communities.

3.2 Securitizing Global Climate Change

Since the *UN Conference on Environment and Development* (UNCED) in Rio de Janeiro (1992) and the *World Summit on Sustainable Development* (WSSD) in Johannesburg (2002) the GEC posed by climate change, water stress, and soil erosion and desertification have been added to the international policy agenda, and since the turn of the millennium they have increasingly been addressed and perceived as new security issues.

Since the early 21st century climate change has increasingly been perceived as a security problem. Climate change has gradually been 'securitized' in government reports and in statements of government officials in the UK, in Germany, in the USA, and in many other countries. It got on the US national policy agenda in February 2004 when a Pentagon contract study by Schwartz and Randall (2003) was leaked that stimulated a policy discussion that was further fuelled by a documentary "The Day After Tomorrow: Could it Really Happen" on a very dramatized impact of an abrupt climate change (NRC 2001). Since 2007 many policy studies have securitized climate change as: a) an *international security* issue (3.2.1); b) a *national security* threat for the United States (3.2.2), and c) as a *human security* challenge affecting socially vulnerable and poor population groups (3.2.3).

3.2.1 Climate Change as an International Security Danger and Concern

At the "World Conference on the Changing Atmosphere – Implications for Global Security" in June 1988 in Toronto, the then Norwegian Prime Minister Brundtland stated that "the impact of world climate change may be greater than any challenge mankind has faced, with the exception of preventing nuclear war". She thus launched the process of *politicization* and *securitization* of climate change that reached a political criticality during the year 2007.

In autumn of 1988, during its 30th anniversary meeting in Brighton, the IISS addressed non-military aspects of strategy, where Neville Brown (1989, 2001) argued that "the challenge begins to look like 'the moral equivalent of war', not least because a failure to meet it would have catastrophic consequences for international security". Brown (1989: 531) called for a paradigmatic shift in strategy and the "adoption of a new corpus of knowledge and ideas", and that strategists will find themselves confronted "with a large, diverse and unfamiliar agenda. But it will be one informed by the precept that if doom can be foreseen, it may be thwarted. Such a self-defeating prophecy is what good strategy has always been about". Peter Gleick (1989, 1989a) argued that "global climate change will potentially alter agricultural productiv-

ity, freshwater availability and quality, access to vital minerals, coastal and island flooding, and more". These impacts "will be challenges to political relationships, realignment of energy markets and regional economies, and threats to security".

Thirteen years later, a report for the German environment ministry (BMU) focused on the causes of climate change and their complex interactions with other drivers of GEC, on those environmental factors that contribute to environmental stress as a driver that may cause or trigger potential conflictual or cooperative outcomes. This BMU-study discussed the results of these considerations in five case studies on small island states, Mexico, Bangladesh, Egypt, and for the Mediterranean, and drew conceptual conclusions for scientific considerations and strategies aiming at conflict prevention (Brauch 2002).

Five years later, the *German Advisory Council on Global Change* (WBGU 2007/2008) reviewed *Climate Change as a Security Risk* arguing that "without resolute counteraction, climate change will overstretch many societies' adaptive capacities within the coming decades. This could result in destabilization and violence, jeopardizing national and international security to a new degree". But also a positive development is possible if the international community "recognizes climate change as a threat to humankind and soon sets the course for the avoidance of dangerous anthropogenic climate change by adopting a dynamic and globally coordinated climate policy".[11]

The report refers to probable new conflict constellations due to sea level rise, storms, and floods that may threaten coastal cities and industrial regions. The melting of the glaciers may jeopardize water supply in the Andean and Himalayan regions. The disappearance of the Amazon Forest and the loss of the Asian monsoon "could cause large-scale changes in the Earth System" and "incalculable consequences for the societies concerned". While the WBGU considered "climate-induced inter-state wars" unlikely, it argued that "climate change could trigger national and international distributional conflicts and intensify problems already hard to manage such as state failure, the erosion of social order, and rising violence. In the worst-affected regions, this could lead to the proliferation of destabilization processes with diffuse conflict structures. These dynamics threaten to overstretch the established global governance system, thus jeopardizing international stability and security".

The WBGU identified four conflict constellations "as typical causal linkages at the interface of environment and society, whose dynamic can lead to social destabilization and, in the end, to violence": a) Climate-induced degradation of freshwater resources: b) Climate-induced decline in food production; c) Climate-induced increase in storm and flood disasters; and d) Environmentally-induced migration. The WBGU identified several regional hotspots in North Africa, the Sahel zone, in Southern Africa, in Central Asia, India, Pakistan and Bangladesh, in China, Caribbean and the Gulf of Mexico and in the Andean region and Amazonia.

The WBGU referred to "six key threats to international security and stability which will arise if climate change mitigation fails": 1) possible increase in the number of weak and fragile states as a result of climate change; 2) risks for global economic development; 3) risks of growing international distributional conflicts between the main drivers of climate change and those most affected; 4) the risk to human rights and the industrialized countries' legitimacy as global governance actors; 5) triggering and intensification of migration; and 6) overstretching of classic security policy.

Whether these conflict constellations and social crises will occur depends on the increase of global average temperature by the end of this century. Thus, in the WBGU's view, "climate policy … becomes preventive security policy, for if climate policy is successful in limiting

[11] See for details the WBGU website at: <http://www.wbgu.de/wbgu_jg2007_engl.html>, where several expert studies are also available for download at: < http://www.wbgu.de/wbgu_jg2007_kurz_engl.html> and the full report is at: < http://www.wbgu.de/wbgu_jg2007_engl.pdf>.

the rise in globally averaged surface temperatures to no more than 2°C relative to the pre-industrial value, the climate-induced threat to international security would likely be averted".But – the WBGU Report further argued – if the mitigation efforts fail,

> climate-induced security risks will begin to manifest themselves in various regions of the world from around 2025–2040. The key challenge is to take resolute climate policy action within the next 10–15 years, in order to avert the socio-economic distortions and implications for international security that will otherwise intensify in subsequent decades.

A week after the G-8 summit in Heiligendamm (Germany), the WBGU report was discussed in the German Foreign Office with representatives of civil society. In his concluding remarks Foreign Minister Steinmeier argued that an effective global climate policy is "decisive for stability and peace in the world". The German foreign minister called for a preventive environmental diplomacy and a resource-oriented industrial policy also in the Near and Middle East "where ecological questions have become issues of survival and security". He called for a European diplomacy to cope with the security challenges posed by climate change, and he announced that this preventive approach would be discussed in a meeting of foreign ministers of the G-8 and G-5 in late 2007 in Berlin.[12]

Key arguments of this study are reflected in a paper of the European Commission and of the Secretary-General of the European Council that was approved by the European Council on 14 March 2008. Thus this scientific agenda setting has resulted within nine months in a policy document of the 27 countries of the European Union.

A background paper for the 'International Women Leaders Global Security Summit' in November 2007 in New York[13] put forward "a new security agenda that views the safety of people as inseparable from the security of the state" focusing on "four important themes of global security: climate change, the responsibility to protect, the economics of insecurity, and preventing terrorism(s)". This report stated that:

> Climate change poses significant security risks due to an increased occurrence of severe weather patterns, degradation of vital natural resources and threats to the livelihoods and safety of populations on every continent. Pressure on resources, natural disasters and humanitarian crises – including flooding, drought, desertification and loss of arable land, massive and rapid migration and refugee flows – have the potential to threaten economic, political and social stability while increasing the risk of internal civil unrest.

The report of the International Women Leaders Global Security Summit further argued that

> Women's leadership must help increase political will at the national and global level, guide the private sector away from voluntary initiatives and toward legally required changes in practice, give voice to affected communities in setting priority targets and legal standards, and identify and prioritize the communities most in need of assistance to mitigate and cope with the effects of climate change.

The report suggested that "An integrated human, gender and environmental security approach is needed for dealing with the growing threat of climate change, in order to develop appropriate adaptation and mitigation strategies." This summit concluded that "the road to real security requires women leaders to integrate state, global and human security in a mutually reinforcing way that builds upon currently existing theoretical frameworks of security policy". Women leaders must "use existing mechanisms to enforce global standards and existing international law, and create new methods where needed". It argued that "women leaders bring a new perspective to the security policy dialogue … that can make a difference in both government and civil society. Building an inclusive process, persistence, consensus-building, considerations of short- and long-

[12] This meeting on "Sicherheitsrisiko Klimawandel" is fully documented in German in: Auswärtiges Amt (2007).

[13] See for details at: < http://womenandglobalsecurity.org/>. A summary report of this event is at: < http://womenandglobalsecurity.org/docs/IWLGSS%20Report.pdf>; and a summary of the background paper on climate change is at: <>

term implications and a talent for negotiation are some of the cornerstones of traditional women's leadership". Women leaders can "create practical change and apply a human face to security".

These national and international efforts to securitize climate change and its projected societal impacts have been complemented by many reports for NGOs and national governments (e.g. in Sweden for SIDA and FOI) that share the goal of making climate change an issue of utmost political importance that requires extraordinary policy responses and coping measures.

The links between climate change, peace and war were analysed in a report by International Alert (Smith/Vivekananda 2007) that highlighted four key elements of risk – political instability, economic weakness, food insecurity, and large-scale migration, and it made twelve recommendations for addressing climate change in fragile states. It discussed the climate change impacts for Algeria, Darfur, Peru, Bangladesh, and for Karachi, governance matters for Mali and Chad, as well as linking for Liberia peacebuilding and climate adaptation efforts and developing social resilience for Nepal. The report supplied two lists of states at risk: a) facing a high risk of armed conflict as a consequence of climate change (46 states); and b) states facing a high risk of political instability as a consequence of climate change (56 states). An extended version of *A Climate of Conflict* was published by SIDA (Smith/Vivekananda 2008) that offers case studies on Kenya, Bangladesh, Mali and Chad, as well as on Sudan and Darfur, Liberia, Nepal, Colombia and Rwanda.[14]

In a study for the *Swedish Defence Research Agency* (FOI), Peter Haldén (December 2007: 4) analysed "The Geopolitics of Climate Change" by focusing on: "whether and in what way climate change may alter the conditions of international security". He argues that "organized violence is more likely in regions with weak states and conflictual inter-state dynamics than in those characterized by co-operative relations", and he concludes that "in the short- to medium term, climate change is unlikely to alter the constitutive structures of international security", but that "a long-term development marked by unmitigated climate change could very well have serious consequences for international security".[15]

In December 2007 Ecopeace/Friends of the Earth Middle East in a report on '*Climate Change: A New Threat to Middle East Security'* (Freimuth/Bromberg/Mehyar/Alkahteeb 2007: $) argued that "the climate crisis and its potential physical and socio-economic impacts are likely to exacerbate this cross-border instability" and that "climate change is likely to act as a 'threat multiplier' – exacerbating water scarcity and tensions over water within and between nations linked by hydrological resources; geography; and shared political boundaries". However, this crisis offers opportunities "for local, cross-border and international cooperation to ameliorate the problems that are already occurring and that are projected to intensify".[16]

The impacts of "climate change as the 'new' security threat for Africa" (Brown/Hammill/McLeman 2007) have been discussed since 2007 and several contract studies for European ministries of development also for subregions (e.g. for West Africa) and countries (Ghana, Burkina Faso, e.g. by Brown/Crawford 2008) and provinces (Darfur, e.g., by UNEP 2007). Several African leaders have called climate change as an 'act of aggression' (President Museveni of Uganda in 2007).

For the *securitization* of climate change impacts by policy-makers in North and South, Brown, Hammill and McLeman (2007: 1143-1154) pointed to two reasons a) that climate change

[14] The study of International Alert is for download at: http://www.international-alert.org/publications/322.php; the version for SIDA is at: <http://www.envirosecurity.org/activities/diplomacy/gfsp/documents/A_Climate_of_Conflict>.

[15] See for download at: < http://www.foi.se/upload/projekt/Climatools/Rapporter/FOI-R--2377--SE.pdf>; and for a summary of a symposium in Brussels on 23 April 2008; at: < http://www.envirosecurity.org/news/>.

[16] It took up an argument presented by Brauch (2004a, 2006a, 2007f, 2007g) at an Israeli-Palestinian conference in Antalya in October 2004, and at a NATO conference in the Negev in February 2006.

"threatens to exacerbate drivers of conflict in a way that could roll back development across many countries", and b) that this debate is "part of a clear process to invest the international debate with a greater sense of urgency". They argue that this debate presents both risks (if it creates a sense of hopelessness, search for military solutions, and results in a distraction of resources from development) and opportunities if it encourages politicians to reduce emissions, to invest in adaptation, and speed efforts for implementing both climate and conflict resolution policies.

The security aspects and implications of climate change have been considered by government representatives within the environment directorate of the OECD, and informally discussed between the British Foreign Office (FCO) and the German Environment Ministry (BMU) since 2001. The public policy debate on the *securitization* of climate change has been most intensive in the UK since 2004 in which successive secretaries of defence and foreign affairs, as well as high level policy advisers, leading scientists, and retired diplomats actively participated at conferences and in the media.

On 9 January 2004, David King, the UK Government's chief scientific adviser, was quoted as saying that climate change is a far greater threat to the world than international terrorism.[17] In February 2004, John Reid MP, then British Secretary of State for Defence and later Home Secretary, argued that climate change may spark conflict between nations. He claimed that violence and political conflict would become more likely in the next 20 to 30 years with climate change, he listed among the major threats in future decades, "uncertainty about the geopolitical and human consequences of climate change. … Impacts such as flooding, melting permafrost and desertification could lead to loss of agricultural land, poisoning of water supplies and destruction of economic infrastructure. … More than 300 million people in Africa currently lack access to safe water; climate change will worsen this dire situation".[18]

In October 2006, the *Stern Review* on the *Economics of Climate Change* by the Prime Minister's Special Adviser, Sir Nicolas Stern (2006), reviewed the scientific basis, impacts of climate change on growth and development, the economics of stabilization, the policy responses for mitigation and adaptation and international collective action to cope with the consequences of GCC. The *Stern Review* notes among the societal impacts of GCC:

- Greater resource scarcity, desertification, risks of drought and floods, and rising sea levels could drive many millions of people to migrate – a last-resort adaptation for individuals that could be costly to them and to the world.
- Drought and other climate-related shocks may spark conflict and violence, as they have done already in many parts of Africa.

Stern (2006: 128-131) listed both future risks in West Africa and in the Nile River Basin, and past national and cross-border conflicts. His report assessed the costs of climate change and the economic benefits of proactive climate policies: It contributed to a further *politicization* of GCC, and enhanced the perception of 'urgency' and of a need for 'extraordinary measures' to cope with GCC, two essential component of Britain's political strategy of *securitization*.

In October 2006, Foreign Secretary Margaret Beckett considered climate change as a "serious threat to international security" that "must not be dealt with using guns and tanks, but through

[17] See: Goklany and King: "Climate Change and Malaria", in: *Science*, 1 October 2004: 55-57; BBC (2007) "Global Warming 'Biggest Threat'"; at: <http://news.bbc.co.uk/1/hi/sci/tech/3381425.stm >; see also BBC: "Scientist urges US climate help" on 10 March 2004; at: < http://news.bbc.co.uk/1/hi/sci/tech/ 3498830.stm> and on 31 March 2004; at: < http://news.bbc.co.uk/1/hi/uk_politics/3584679.stm >.

[18] See: Ben Russell and Nigel Morris: "Armed forces are put on standby to tackle threat of wars over water", in; *Independent*, 28 February 2006; at: <http://news.independent.co.uk/environment/article348196.ece >.

dialogue and the sharing of new technologies between developed and developing countries".[19] John Ashton, her Special Representative for Climate Change, repeatedly argued: "Climate change is a security issue because if we don't deal with it, people will die and states will fail." And he added that "there is no hard power solution to climate change – you cannot force your neighbour to change its carbon emissions at the barrel of a gun".[20]

This British '*securitization move*' culminated in April 2007 in a debate in the UN Security Council. This followed UNSC Res. 1625 of 14 September 2005 that called for promoting sustainable development as part of a broad strategy of conflict prevention. This linkage was explicitly stressed in the UK concept paper that put climate change on the agenda of the UN Security Council on 17 April 2007, when this body addressed for the first time climate change as a security issue.[21] In her opening statement UK Foreign Secretary Margaret Beckett listed among new causes of conflicts: "fights over water, changing patterns of rainfall, fights over food production, land use".[22] She argued that "an unstable climate will exacerbate some of the core drivers of conflict, such as migratory pressures and competition for resources". Japan's Ambassador Kenzo Oshima said that "it is clear that climate change can pose threats to national security … [and] in the foreseeable future climate change may well create conditions or induce circumstances that could precipitate or aggravate international conflicts". On behalf of the EU countries, the German Development Minister, Heidemarie Wieczorek-Zeul, argued[23]

> that the scarcity of water, food and fertile land can be a contributing factor to drive conflict, [and] the vulnerability of people … can increase the potential for instability and conflict. … A wide range of interacting factors such as ethnic tensions, trans-border disputes, inequalities in societies, population movements and failed states can contribute to armed conflict. But climate change will become an ever more important factor among root causes for conflict as the climate will continue to change at a faster rate.

From this political analysis, the representative of the EU presidency argued that

> we are in need of a global framework of risk management to address the challenge of climate change. … The security dimension should be duly reflected in future research and reports on the effects of climate change. … An overall framework of preventive diplomacy is needed in order to alleviate the worst consequences…. As other challenges to humankind like hunger, disease, poverty, water scarcity or migration, climate change should be addressed in a holistic and preventive manner.

Among the countries that supported this '*securitizing move*' Sindico (2007) distinguished three groups, a) those wanting to raise global awareness for climate change (UK), b) those focusing on conflict prevention (Germany, France), and c) the most vulnerable small island states. The opponents argued that climate change as a sustainable development issue should not be considered by the UNSC (China, Russia, India, South Africa, Brazil, Indonesia, and Qatar) but by the UNGA, ECOSOC, and UNCSD, while Mexico and Singapore acknowl-

[19] See: British Embassy Berlin: "Speech given by Foreign Secretary, Margaret Beckett, at the British Embassy, Berlin, 24 October 2006"; at: <http://www.britischebotschaft.de/en/news/items/061024.htm>; the quotes are from "Climate change 'serious threat to global security'"; at: <http://www.politics.co.uk/news/foreign-policy/international-development/debt-and-debt-relief-in-developing-world/climate-change-serious-threat-global-security-$455615.htm >.

[20] Quoted in: Ben Vogel (2007) "Climate change creates security challenge 'more complex than Cold War'", in: *Janes.com*; at: <http://www.janes.com/security/international_security/news/misc/janes070130_1_n.shtml>; quoted by Chris Littlecott (2007) "Climate Change: The Global Security Impact" 5 February; at: < http://www.e3g.org/index.php/programmes/climate-articles/climate-change-the-global-security-impact />.

[21] "Press Conference by Security Council President, 4 April 2007"; at: <http://www.un.org/News/briefings/ docs //2007/070404_Parry.doc.htm>;

[22] Bloomberg news: "UN attacks climate change as threat to peace", in: *International Herald Tribune,* 18 April 2007: 2;

[23] For the text see at: < http://www.europa-eu-un.org/articles/en/article_6953_en.htm>.

edged that climate change could lead to future security concerns but that the UNSC should not interfere into state energy policies.

For UN Secretary General, Ban Ki-moon "projected changes in the earth's climate are thus not only an environmental concern. … Issues of energy and climate change can have implications for peace and security". [24] By taking climate change to the UNSC, it has been upgraded from an environmental and development to a security issue. But the debate on climate change at the UNSC has also shown two different approaches to security. A broad concept of international security promoted by developed countries that embraces climate change, and a narrow concept favoured by developing countries, which tends to exclude climate change from the global security agenda. … Developing countries rightly fear that some developed countries wish to securitize climate change in order to impose their own climate policy (Sindico 2007: 34).

In May 2007, in a speech at RUSI on "the case for climate security", Foreign Secretary Margaret Beckett argued that climate security "requires a whole new approach to how we analyse and act on security. The threat to our climate security comes not from outside but from within: we are all our own enemies. And what is at stake is not the relatively narrow national security of individual states but our collective security in an interdependent world". She further stressed that "the traditional tools of hard security – in simple terms bombs and bullets – are not going to be able to solve that problem". Guaranteeing this new security requires a "commitment to non-military options: to international diplomacy; to leveraging international finance and markets; to building coalitions between governments, business and consumers". The new objective "in the fight against climate change … is not to defend a way of life but to change it". This implies "nothing less than to shift the foundations upon which the global economy is built".[25] But Ms. Beckett also hinted to a tactical component of her *securitization move*:

> Flagging up the security aspects of climate change has a role in galvanising those governments who have yet to act. And, for all of us, it has a role in setting the level of ambition – the political and financial commitment – that is needed. Second, the security community has a very direct role to play. The analytical framework – the scenario building – … was developed … in the security community. ... For a problem with the complexity of climate change, that ability to construct a vision of the future and to draw the links between a wide variety of physical impacts and possible consequences to our security is invaluable.

Since January 2004, when Sir David King claimed that climate change was a more urgent security threat than terrorism, in many interviews, speeches, and reports ('speech acts') high British government officials launched a 'securitizing move' addressing GCC as a new danger for global, international, and collective security that succeeded to stir a public debate in the UK that rapidly proliferated abroad, and to put climate change on the agenda of the UNSC. Already in 2001, officials in the German Environment Ministry commissioned a report on *Climate Change and Conflict* (BMU 2002) that was intended to put the security dimension of GCC on the agenda of the IPCC for its fourth Assessment Report, and on the agenda of OECD.[26] In 2007, the *German Advisory Council on Global Change* (WBGU)[27] focused its

[24] UN Security Council, SC/9000, 5663rd meeting, 17 April 2007: "Security Council holds first-ever debate on impact of climate change on peace, security, hearing 50 speakers"; at: <http://un.org/news/press/ docs/2007/ sc9000.doc.htm>; Reuters: "UN Council Hits Impasse over Debate on Warming", in: *New York Times,* 18 April 2007; Edith M. Lederer: "Security Council Tackles Climate Change", in: *Washington Post,* 18 April 2007.

[25] See text at: < http://www.fco.gov.uk/en/newsroom/latest-news/?view=Speech&id=1892973>.

[26] See the following OECD papers: Agrawala/Moehner/El Raey/Conwa/van Aals/Hagenstad/Smith 2004; Agrawala/Moehner/Hemp/van Aalst/Hitz/Smith/Meena/Mwakifwamba/Hyera/Mwaipopo 2003; Agrawala/Ota/Ahmed/ Smith/van Aalst 2003; Agrawala/Ota/Risbey/Hagenstad/Smith/van Aalst/Koshy/Prasad 2003;Agrawala/ Raksakulthai/van Aals/Larsen/Smith/Reynolds 2003.

flagship report on *Climate Change as a Security Risk* (WBGU 2007/2008) that was tabled in June 2007, just prior to the G-8 meeting in Heiligendamm (Germany).

The climate change issue has been discussed at the G-8 meetings in August 2005 in Gleneagles[28] in the UK and in June 2007 in Heiligendamm in Germany where the heads of states and/or governments of the G-8 agreed … "in setting a global goal for emissions reductions" that they will "consider seriously the decisions made by the European Union, Canada and Japan which include at least a halving of global emission by 2050".[29] In a joint statement of the German G-8 presidency with the heads of states and/or governments of Brazil, China, India, Mexico and South Africa, the goal of fighting climate change was endorsed, including the "crucial role of economic incentives," "climate friendly investments in large scale", and improved means of adaptation for developing countries "with enhanced technology cooperation and financing".

On 31 July to 2 August 2007, the UN General Assembly held an "informal thematic debate" on "climate change as a global challenge" (Spence/Chasek 2007). On 24 September 2007, United Nations Secretary-General Ban Ki-moon convened a high-level event on climate change "to advance the global agenda on climate change when he me[t] with heads of state and other top officials from more than 150 countries at United Nations Headquarters".[30]

In November 2007 the *Human Development Report 2007/2008: Fighting climate change: Human solidarity in a divided world* (UNDP 2007/2008) suggested that the world should focus on the development impact of climate change. The *Human Development Report 2007/2008* argues that climate change poses challenges for political leaders and people in rich nations to acknowledge their historic responsibility and to initiate significant cuts in greenhouse gas emissions, and for the entire human community to undertake prompt and strong collective action. Climate change also poses major obstacles to progress in meeting the MDGs and maintaining progress raising the HDI.[31]

On 14 March 2008, the Council of the European Union released a paper on "Climate change and international security" (S113/08) from the High Representative and the European Commission to the European Council that reflected key arguments of the 2007 WBGU report. This EU policy paper sees "Climate change … as a threat multiplier which exacerbates existing trends, tensions and instability" that "threatens to overburden states and regions which are

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[27] See on the mission of the WBGU, at: <http://www.wbgu.de/wbgu_auftrag_en.html>. Among the WBGU's tasks are to: a) analyse global environment and development problems and report on these, b) review and evaluate national and international research in the field of global change, c) provide early warning of new issue areas, d) identify gaps in research and to initiate new research, e) monitor and assess national and international policies for the achievement of sustainable development, f) elaborate recommendations for action and research, and g) raise public awareness and heighten the media profile of global change issues. Its nine members are jointly appointed by the Federal Ministry for Education and Research and the Federal Ministry for Environment, Nature Conservation, and Nuclear Safety, in agreement with other ministries for a period of four years.

[28] At the G-8 meeting in Gleneagles the *Gleneagles Plan of Action* on "Climate Change, Clean Energy and Sustainable Development"; at: <http://www.fco.gov.uk/Files/kfile/PostG8_Gleneagles_CCChangePlanofAction.pdf >:

[29] For the documents of the G-8 Meeting in Heiligendamm, Germany on 8 June 2007; at: < http://www.g-8.de/Webs/G8/ EN/G8Summit/SummitDocuments/summit-documents.html > and the chair's conclusions; at: < http://www.g-8.de/nsc_true/Content/EN/Artikel/__g8-summit/anlagen/chairs-summary,templateId=raw,property=publicationFile.pdf/chairs-summary>.

[30] See: "Background note by the Secretary-General"; at: <http://www.un.org/climatechange/2007highlevel/background.shtml >.

[31] UNDP (2007/2008); at: <http://hdr.undp.org/>; see also: UNDP/UNEP/World Bank/ADB/AfDB/GTZ/DFID/OECD/EC (2003).

already fragile and conflict prone".[32] They include "political and security risks that directly affect European interests". It further claims that "in line with the concept of human security, it is clear that many issues related to the impact of climate change on international security are interlinked requiring comprehensive policy responses". It "focuses on the impact of climate change on international security and considers the impact of these international security consequences for Europe's own security, and how the EU should respond". And it "concludes that it is in Europe's self interest to address the security implications of climate change with a series of measures: at the level of the EU, in bilateral relations and at the multilateral level, in mutually supportive ways".

The EU paper lists seven major international security threats posed by climate change: i) conflict over resources; ii) economic damage and risk to coastal cities and critical infrastructure; iii) loss of territory and border disputes; iv) environmentally-induced migration; v) situations of fragility and radicalization; vi) tension over energy supply; and vii) pressure on international governance. It discusses several geographical examples where these threats may materialize: a) Africa, b) Middle East, c) South Asia, d) Central Asia, e) Latin America and Caribbean, and f) Arctic. Based on this analysis the EU policy paper concluded that:

> The active role of the EU in the international climate change negotiations is vital and must continue. The EU has demonstrated leadership both in international negotiations … with its far-reaching decisions on domestic climate and energy policies. … In the EU's response, special consideration needs to be given to the US, China and India and what the implications mean for the EU's long-term relations with Russia. The recommendations below should be complemented by further studies and followed up by coherent EU action plans, aiming at addressing the different dimensions of the responses required to address the impact of climate change on international security in a comprehensive and effective manner. The upcoming examination of the implementation of the European Security Strategy … should take account of the security dimension of climate change.

The report recommended specifically: a) *to enhance capacities at the EU level* (build up knowledge, assess the EU's own capacities, improvement in the prevention of, and preparedness for early responses to, disasters and conflicts). With regard to the "*cooperation with third countries*" the paper calls for "revisiting and reinforcing EU cooperation and political dialogue instruments, giving more attention to the impact of climate change on security". The paper argued that "this could lead to greater prioritization and enhanced support for climate change mitigation and adaptation, good governance, natural resource management, technology transfer, trans-boundary environmental cooperation (inter alia water and land), institutional strengthening and capacity building for crisis management".

Thus, the European Union has taken up the conceptual and political debate on the *securitization* of climate change in the UK and in Germany, and thus the European Council has become a major s*ecuritizing actor* in translating the scientific messages into concrete policy proposals that will lead to action in the years to come.[33]

During the meeting of the European Council, on 13 March 2008 the British Foreign Secretary David Miliband and the German Foreign Minister Frank-Walter Steinmeier argued in a joint article that climate change "threatens our prosperity and well-being, not just in Europe but beyond. Moreover, it will reshape the geopolitics of the world in which we live, with important consequences for peace and security".[34]

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[32] Joint paper by the Commission and the Secretary-General/High Representative concerning "Climate change and international security" to the European Council, Brussels, 3 March 2008; **Source:** http://euractiv.com/29/images/SolanaCCsecurity%20reportpdf_tcm 29-170886.pdf.

[33] Andrew Bounds: "Climate change poses 'security risk'", in: *FT.Com*. 3 March 2008; Ian Traynor: "EU told to prepare for flood of climate change migrants", in: *The Guardian*, 10 March 2008.

[34] British Embassy Berlin: "Europe has to rise to the security challenges of climate change. Joint contribution by Foreign Secretary David Miliband and German Foreign Minister Frank-Walter Steinmeier, 13 March 2008"; at: <http://www.britischebotschaft.de/en/news/items/080313a.htm>.

Both foreign ministers referred to their joint and coordinated efforts to securitize climate change by putting

> the security implications of climate change on top of the international agenda. In 2007, the UK initiated a debate in the UN Security Council on the impacts of climate change on peace and security. During her EU Presidency in 2007, Germany initiated a report on a European response to the new security risks. … Both UK and Germany support a European response to the emerging security challenges of climate change. We want to help implement an effective European and multilateral strategy to address the new threats. What are the important elements of such a strategy?

In the view of the British and German Foreign Ministers:

> Anticipating new foreign policy challenges and reinforcing the climate security and conflict prevention aspects of our regional strategies are important steps in defining a joint EU response. These efforts will help us to avoid growing resentment between those most responsible for climate change and those most affected by it. A potential stand-off between 'polluters' – both in the North and among the emerging economies - and 'victims', who will be predominantly in the South, would put the already burdened international security architecture under increasing pressure.
>
> Ultimately, there is no hard power option for tackling the causes of the climate threat or for dealing with its direct impacts. You cannot use military force to build a low carbon global economy; no weapon system can halt the advance of a hurricane bearing down on a city, or hold back the rising sea. But what the emerging analysis on climate and security tells us is that we can be sure that there will be hard power consequences if we fail to rise to the challenge.

Since 2007, many international organizations have made climate change a priority of their activities. Several divisions of the World Bank are now working on climate change issues. In March 2008 the Division on Social Development in a workshop addressed the "Social Dimensions of Climate Change". On 27 March 2008, the Environmental Division released a concept and issues paper on: "Addressing a Strategic Framework on Climate Change and Development for the World Bank Group". The World Bank plans a *World Development Report 2010 on Climate Change*.

While many of these policy studies for government agencies and NGOs discuss a variety of potential security dangers and concerns posed by climate change impacts, many high-level policy-makers and policy advisers have also claimed such links between climate change and conflict. These policy documents and statements ('speech acts') illustrate the manifold policy efforts, especially since 2007, to securitize climate change by addressing it as a key security concern for the survival of humankind and for the affected states that require proactive extraordinary measures to reduce the probability that the impacts of political baseline scenarios become a conflictual reality.

Thus, the year 2007 has been the turning point in the *securitization* of problems of global environmental change, and especially of climate change. During 2007, the IPCC, as a knowledge-based epistemic community, has indirectly become a major *securitizing actor* although its mandate has so far excluded security issues, and in the fourth assessment report no single reference to security could be found. But the scientific messages of the IPCC, due to its high scientific and political reputation and their instant and wide global coverage and dissemination, have reached a global audience that has increasingly become receptive to the sense of urgency what again has made it attractive for national policy makers to stress the need for proactive and massive action even though the lobbyists of affected industrial sectors have tried to delay and to weaken responses that would be costly for them.

Both Britain and Germany – during its dual presidency of the G-8 and the EU – have taken the lead in putting the security implications of climate change impacts on the agenda of the UN Security Council, on the agenda of the meetings of the G-8 and of the G-5 in June 2007 in Germany and tabling this question on the agenda of the European Union. Two women leaders who where trained in the natural sciences (physics and metallurgy) played a key political role

in the *securitization* of climate change, German Chancellor Angela Merkel and UK Foreign Secretary Margaret Beckett, who both had previously been engaged in climate change policies and negotiations as former environment ministers (Merkel 1994-1998; Beckett 2001-2006).

In the meantime, the *securitization* of climate change has also reached the traditional s*ecuritizing actors*, the national defence ministries, the military establishments, and the intelligence community that have started to address climate change as a new national security threat.

3.2.2 Climate Change as a National Security Danger and Concern

The *securitization* of climate change as a national security issue has started in the USA in February 2004 when a contract study by Schwartz and Randall (2004) for the US Department of Defense was leaked to the press. Three years later, Gilman, Randall, and Schwartz (2007) discussed the *Impacts of Climate Change on US national security* as did a report on *National Security and the Threat of Climate Change* by the US *Center of Naval Analysis* (CNA 2007).

This study addressed three questions: a) on the conditions climate change is likely to produce globally that represent security risks for the USA; b) how they may affect the US national security interests; and c) what actions should the USA launch to address its national security consequences. The study concluded that the predicted consequences of climate change include: "extreme weather events, drought, flooding, sea level rise, retreating glaciers, habitat shifts, and the increased spread of life-threatening diseases", that may add "new hostile and stressing factors" and that have the potential "to create sustained natural and humanitarian disasters" whose consequences "will likely foster political instability where societal demands exceed the capacity of governments to cope" and it "will add to the tensions even in stable regions of the world".[35]

The study suggested that the climate change impacts "should be fully integrated into national security and national defense strategies", that the USA should help "stabilize climate changes at levels that will avoid significant disruption to global security and stability", and "help less developed nations build the capacity and resiliency to better manage climate impacts". It proposed that the US Department of Defense should "enhance its operational capability by accelerating the adoption of improved business processes and innovative technologies that result in improved US combat power through energy efficiency", and "conduct an assessment of the impact on US military installations worldwide of rising sea levels, extreme weather events and other projected climate change impacts over the next 30 to 40 years".

On 29-31 March 2007, the Strategic Studies Institute and the Triangle Institute for Security Studies conducted a colloquium on "Global Climate Change: National Security Implications," that reached the following key insights that climate change is underway and that its national security implications "are proportional both to the speed of change and the extent", that "threats to national survival stemming from catastrophic change must be anticipated, evaluated, and neutralized to the greatest degree possible", and that this will "require multinational, multi-agency cooperation on a scale heretofore unimaginable and could provide no-fault ground for global cooperation". The first impact would come from displaced people and their malnutrition and disease that "could aggravate or spark displacement and border security issues".[36] In November 2007, the *Center for Strategic and International Studies* (CSIS) and the *Center for a New American Security* (CNAS) released a report on: *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change* (Campbell/Lennon/Smith 2007) by a group of high-level US security experts and climate specialists that discussed three future worlds with climate change impacts during the next 30 and 100 years that

[35] This report was discussed at a meeting on "National Security and the Threat of Climate Change", by the Environmental Change and Security Program (ECSP) of the Wilson Center on 14 May 2007.

[36] U.S. Army War College and Triangle Institute for Security Studies, Strategic Studies Institute, Colloquium Brief, compiled by Douglas V. Johnson II; at: <http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB779.pdf>.

are based on *expected, severe,* and *catastrophic* climate cases. The first scenario projects the effects in the next 30 years with the *expected* level of climate change. The *severe* scenario, which posits that the climate responds much more strongly to continued carbon loading over the next few decades than predicted by current scientific models, foresees profound and potentially destabilizing global effects over the course of the next generation or more. Finally, the *catastrophic* scenario is characterized by a devastating 'tipping point' in the climate system, perhaps 50 or 100 years hence. In this future world, global climate conditions have changed radically, including the rapid loss of the land-based polar ice sheets, an associated dramatic rise in global sea levels, and the destruction beyond repair of the existing natural order.

The authors drew several policy conclusions from the discussion of these three scenarios:

- Historical comparisons from previous civilizations and national experiences of such natural phenomena as floods, earthquakes, and disease may be of help in understanding how societies will deal with unchecked climate change.
- Poor and underdeveloped areas are likely to have fewer resources and less stamina to deal with climate change – in even its very modest – and early manifestations.
- Perhaps the most worrisome problems associated with rising temperatures and sea levels are from large-scale migrations of people – both inside nations and across existing national borders.
- The term 'global climate change' is misleading in that many of the effects will vary dramatically from region to region. A few countries may benefit from climate change in the short term, but there will be no 'winners'.
- Climate change effects will aggravate existing international crises and problems.
- We lack rigorously tested data or reliable modelling to determine with any sense of certainty the ultimate path and pace of temperature increase or sea level rise associated with climate change in the decades ahead.
- Any future international agreement to limit carbon emissions will have considerable geopolitical as well as economic consequences.
- The scale of the potential consequences associated with climate change – particularly in more dire and distant scenarios – made it difficult to grasp the extent and magnitude of the possible changes ahead.
- At a definitional level, a narrow interpretation of the term 'national security' may be woefully inadequate to convey the ways in which state authorities might break down in a worst case climate change scenario.

These studies were picked up by members of the US Congress. In March 2007, Senators Richard J. Durbin (D-IL) and Chuck Hagel (R-NE) introduced the "Global Climate Change Security Oversight Act" (S.1018) requesting a national intelligence estimate to assess whether and how climate change might pose a national security threat (Scheffran 2008: 22). A similar "Global Climate Change Security Oversight Act" (H.R.1961) was submitted in the House by Congressman Edward Markey (D-MA).[37] However, none has so far been adopted by both Houses of the US Congress.

While the CIA had ignored climate change in its projection of the world by 2020 (CIA 2004), it would now have to pinpoint "the regions at highest risk of humanitarian suffering" and assess the "likelihood of wars erupting over diminishing water and other resources". Furthermore, the Pentagon would have to determine how global climate change could affect US security, including "direct physical threats to the United States posed by extreme weather events such as hurricanes". The securitization of climate change as a US national security threat followed the example of AIDS "that was long seen as exclusively a health issue until intelligence

[37] See: Congressional Record: March 28, 2007 (Senate), p. S4059-S4061; at: <http://www.fas.org/irp/congress/2007_cr/s1018.html >; see also at: < GovTrack.us. H.R. 1961--110th Congress (2007): Global Climate Change Security Oversight Act, *GovTrack.us (database of federal legislation)*; at: <http://www.govtrack.us/ congress/bill.xpd?bill=h110-1961> (16 May 2008). For an overview of other bills on this issue submitted to the US Congress; see at: < http://www.pewclimate.org/federal/congressional-proposals/110/National%20Security%20and%20Climate%20Change >.

officials warned that it could ravage military forces across Africa and draw the United States into conflict". [38]

The most recent paper by the US National Intelligence Council: "The world by 2025" (NIC 2008) discussed for the first time in more detail climate change as a security threat and it also referred 11 times to migration as a security issue for the US by 2025. It claimed that "the net migration of people from rural to urban areas and from poorer to richer countries likely will continue apace in 2025, fuelled by a widening gap in economic and physical security between adjacent regions." The report predicted that "the number of migrants seeking to move from disadvantaged into relatively privileged countries is likely to increase. The largest inflows will mirror many current migratory patterns – from North Africa and Western Asia into Europe, Latin America into the US, and Southeast Asia into Australia." The previous NIC reports (2000, 2004, 2008) did not even mention environmental causes as triggers for migration.[39]

In the aftermath of Hurricane Katrina (2005), the most costly natural hazard in US history, US public opinion and the sentiment in the US Congress on climate change have been changing since 2007 when the Democrats regained the majority in both houses. The high scientific reputation of the IPCC's Fourth Assessment Report (2007, 2007a, 2007b, 2007c) and the self-discrediting of the military threats used by the Bush Administration for the justification of its intervention into Iraq[40] have created a credibility gap, the IPCC could temporarily fill as an alternative *securitizing actor* supplementing the Pentagon as the single most important national *securitizing actor*. On the background of these international developments, for the USA the year 2007 has also become a turning point when climate change was increasingly perceived as an urgent security concern for US national security and its military establishment.

Since 2006 climate change has also become an urgent security issue in Australia. In *Heating up the Planet* Alan Dupont and Graeme Pearman (2006) analysed the linkages between climate change and security, arguing that climate change will complicate Australia's security environment due to temperature increase, sea level rise, and an increase in natural hazards by exacerbating "food, water and energy scarcities in a relatively short time span", by contributing to "destabilizing, unregulated population movements in Asia and the Pacific", by triggering "short-term disease spikes but also have more enduring health security consequences". Dupont and Pearman argued that climate change poses fundamental questions of "human security, survival and the stability of nation-states" that must dictate fresh judgments about political and strategic risk as well as economic cost.

In October 2007, an opinion survey conducted by the US Studies Center at the University of Sydney in July 2007 "showed that 40 per cent of Australians thought that global warming was a greater threat to security than Islamic fundamentalism. Only 20 per cent thought it was less serious". According to Alan Dupont, "climate change has moved from the environmental field to the security sphere".

Also the Australian Police Commissioner Mick Keelty argued that climate was a growing security concern. "We could see a catastrophic decline in the availability of fresh water. … Crops could fail, disease could be rampant and flooding might be so frequent that people, en masse, would be on the move. Even if only some and not all of this occurs, climate change is

[38] Bryan Bender: "Bill ties climate to national security seeks assessments by CIA, Pentagon", in: *The Boston Globe*, 9 April 2007.

[39] Many international workshops and conferences have recently addressed the issue of environmentally-induced migration but not specifically as security issues, e.g. the activities by UNU-EHS; at: <http://www.ehs.unu.edu/category:49?menu=26|>.

[40] See: "Commission on the Intelligence Capabilities of the United Stats Regarding Weapons of Mass Destruction", (Washington: White House, 31 March 2005); at: < http://www.wmd.gov/report/index.html> .

going to be the security issue of the 21st century".[41] In this emerging debate the implications for Australian internal and external security were discussed.[42]

In the UK, the British Ministry of Defence (MoD) and its Development, Concepts and Doctrine Centre have identified climate change as a key strategic trend.[43] The UK's Chief of Defence Staff suggested in a speech on 25 June 2007 that climate change is a threat to global security that military planners must include into their calculations.[44] In September 2007, the MoD awarded a £12 million research contract to the UK Met Office, Hadley Centre that calls for identifying those world regions "where global warming could spark conflict and security threats, as well as predict the likely conditions in which British forces may have to deploy in the future".[45]

In Germany, the link between 'climate change and security' was discussed at a workshop by the German Command and Staff College (FüAk) in cooperation with the Centre for Transformation of the German Armed Forces (*Bundeswehr*) and the German Development Institute (GDI) in Hamburg in autumn 2006 (Jopp/Kaestner 2008).

3.2.3 Climate Change as a Human Security Danger and Concern

Climate change also poses severe security impacts for human security and its referent objects: human beings and humankind. From a human security perspective, climate change has been addressed by the GECHS programme of IHDP in June 2005[46] and was the focus of the Greek Presidency of the Human Security Network (2007-2008)[47] that aimed "to raise the international community's awareness of the impact of climate change and global warming on human security, with regard to vulnerable groups, particularly women, children and persons fleeing their homes due to climate change".[48]

A policy memorandum on '*Climate Change and Human Security'*[49] (Wisner/Fordham/Kelman/Johnston/Simon/Lavell/Brauch/OswaldSpring/Wilches-Chaux/Moench/Weiner 2007) pointed to manifold impacts for international, national, and human security for selected direct, indirect, and slow-onset linkages. Africa is very likely to suffer very damaging impacts and

[41] Commissioner Mick Keelty: *Inaugural Ray Whitrod Oration* (Adelaide, September 2007); at: <http://tinyurl.com/2mndhl>.

[42] See: Chris Abbott: *An Uncertain Future. Law Enforcement, National Security and Climate Change*. Briefing paper (London: Oxford Research Group, January 2008); Anthony Bergin, Jacob Townsend, *A Change in Climate for the Australian Defence Force* (Barton, ACT: Australian Strategic Policy Institute, July 2007); at: <http://www.aspi.org.au/publications/publication_details. aspx?ContentID=133&pubtype=10>.

[43] See Abbot (2008: 10); Development, Concepts and Doctrine Centre: *The DCDC Strategic Global Trends Programme, 2007-2036* (Ministry of Defence, December 2006); at: <www.dcdc-strategictrends.org.uk>.

[44] See at: <http://www.mod.uk/DefenceInternet/AboutDefence/People/Speeches/ChiefStaff/ClimateChange PoliticsVsEconomics.htm>.

[45] See Abbot (2008: 10); "Met Office climate change study could help identify future security threats", in: *Defence News* (11 September 2007); at: <http://tinyurl.com/3yrsqe>.

[46] On 21-23 June 2005, *The Global Environmental Change and Human Security* (GECHS) project of IHDP organized a workshop in Oslo on 'climate change and human security'; at: < http://www.cicero.uio.no/humsec/>; papers are at: <http://www.cicero.uio.no/humsec/list_participants.html>. Six papers have been published in a special issue on "Climate Change and Human Security", of: *Erde,* 137, 3: 155-270; other peer reviewed papers were published in a special issue of *Political Geography*, 26,6.

[47] See the Greek concept paper on: "Human Security and the Climate Change Impact on Vulnerable Groups" of 8 May 2007; at: <http://www.humansecuritynetwork.org/docs/2007-ministerial-meeting-04-greek%20paper.doc>.

[48] See Greece, Foreign Ministry at: <http://www.mfa.gr/www.mfa.gr/Articles/en-US/ts18052007_KL2115.htm>. On this official website all activities during the Greek presidency of the HSN and during the Ministerial in Athens on 29-30 May 2008 are documented.

[49] See the memorandum written by: Wisner, Fordham, Kelman. Rose Johnston, Simon, Lavell, Brauch, Oswald Spring, Wilches-Chaux, Moench and Weiner (2007).

has the least resources for coping and adapting to these stresses (IPCC 2007: 10). Livelihood and human security interact with 'hard' security issues because of the national and regional upheavals that climate stress may put on livelihood systems already vulnerable and incapable of adapting.[50] The rural and urban poor are already under stress, and for some groups such as women-headed households in Africa, adaptation to climate-induced stress will be very difficult indeed. Some major climate changes may actually occur rapidly.

Besides the *Human Security Network* (HSN), the *Friends of Human Security* (FHS) that are coordinated by Japan and Mexico also discussed issues of climate change and human security based on a symposium on 31 July 2007 that reviewed the impact of climate change in developing countries, the challenges of disaster risk reduction, and the linkages between development and security.[51] For the Mexican co-chair human security should be understood as a multidimensional concept, which would overcome the existing polarization among the three pillars of the UN: peace and security, development, and human rights.

The conceptual debate on climate change and human security is just starting. Barnet and Adger (2005: 1) discussed how climate change may undermine human security, and how human insecurity may increase the risk of violent conflict as well as the role of states in human security and peace building. Schnabel (2007) addressed the linkages between climate change, human (in-)security and stability because anthropogenic "climate change … poses a risk to economic development and social and political stability" but will also act as a "powerful amplifier of existing threats".

3.2.4 Impact of the Securitizing Move on the Audience

The framing of climate change impacts in terms of international, national, and human security has succeeded to raise public awareness and to reach a global audience. With the presentation of the Fourth Assessment Report in 2007 the IPCC – as a scientific epistemic community – has evolved as an undeclared *securitizing actor*. Several EU countries (UK, Germany, Sweden) took the lead in declaring climate change an existential threat to international security and survival that required urgent and exceptional measures to deal with this threat to which policy-makers and international organizations have responded (G-8, EU, UNFCCC, UNDP, UNEP, World Bank, OECD). These manifold *securitizing moves* have convinced a majority of the people in many countries ('the audience') that climate change has become a major threat or challenge to their own security and survival.[52]

In Britain, in 2006 in an Ipsos MORI poll, 48 per cent of all respondents named climate change as the most serious threat to the planet, compared with 20 per cent who said terrorism, what has been a fundamental change since 2004 when terrorism topped the list. In late 2007, in the wide-ranging global analysis of threats and challenges published by the Swedish Defence Commission, climate change and environmental impact were referred to as the most serious global threat to people's security.

According to a poll conducted by GlobeScan Inc. between October 2005 and January 2006 with 33,237 people from 30 countries, majorities in every country said that climate change is

[50] On the definition of "vulnerability" at the scale of household livelihoods and its linkage with macro-scale processes, see Wisner/Blaikie/Cannon/Davis (2004).

[51] See: Workshop on "Climate Change from the Perspective of Human Security"; at: < http://ochaonline.un.org/WhatsNew/ClimateChangeandHumanSecurity/tabid/2106/Default.aspx>; see the presentation by Under-Secretary-General John Holmes' on: "Human security and disaster reduction". In the view of John Holmes, Under-Secretary-General for Humanitarian Affairs and Emergency Relief Coordinator, "It has become obvious that climate change is the biggest threat the planet faces, especially to the poorest and the most vulnerable among us. Climate change, and the natural hazards and extreme weather events that are associated with it, are not some distant, future threat. The threat to human security is here, it's real, and it's today." <

[52] See: Goska Romanowicz: "Climate change is biggest global threat, say Britons" (14 September 2006); at: http://www.edie.net/ news/news_story_printable.asp?id=11993;

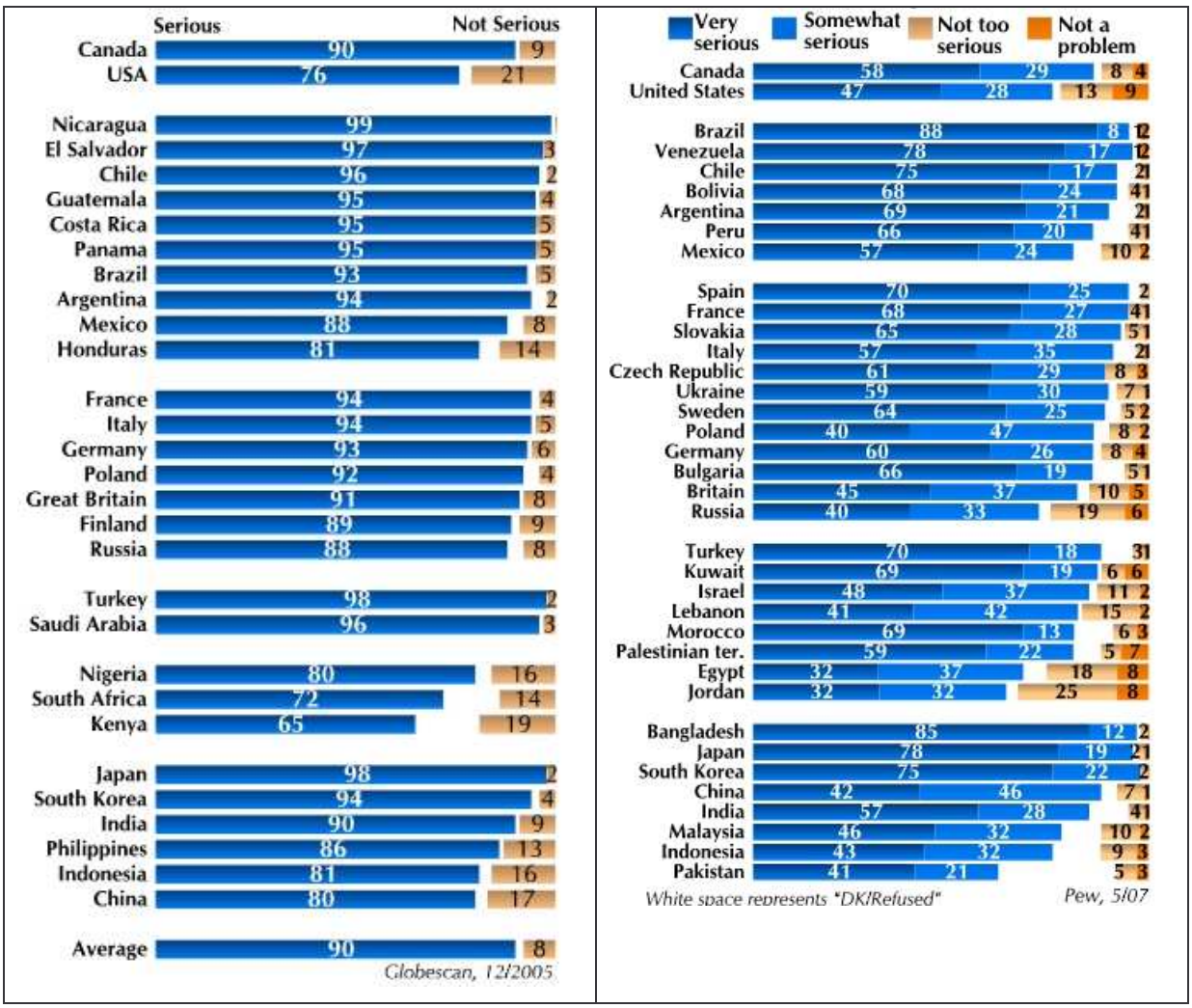
a problem. In 24 countries the problem was seen as very serious by a majority (in 23 countries). Eighty per cent of the Chinese rated the problem as serious, with 39 per cent calling it very serious. Eighty per cent of Americans said the problem was serious, with 49 per cent calling it very serious (figure 2). According to a Pew poll of 27 June 2007 (figure 3)

> majorities in all 37 countries named 'global warming' as a serious problem. Majorities in 25 and pluralities in 6 rated the problem as 'very serious'. With just a few exceptions the percentage saying that the problem is 'not too serious' fell under one in five. The two largest producers of greenhouse gases – the United States and China – had large majorities saying the problem was serious but relatively lower numbers saying that it was very serious. Seventy-five per cent of Americans rated the problem as serious with 47 per cent rating it very serious. In China, 88 per cent considered global warming a very serious problem, while 42 per cent called it very serious.[53]

The *Chicago Council on Global Affairs* (CCGA) in a poll also published in 2007 asked respondents in 10 countries to evaluate the threat posed by "global warming" in the next 10 years. In six of the ten countries majorities called it a critical threat, as did pluralities in another three. Pluralities saw the threat as critical in China (47-33 per cent important) and the United States (46-39 per cent important). Only small minorities in all countries called it unimportant. In 2007 the *German Marshall Fund* (GMF) found that majorities in 12 European countries plus the United States believed they would probably "be personally affected by the effects of global warming". On average across the 12 European countries, 85 per cent said it was likely (very 54 per cent, somewhat 31 per cent); and in no country did less than 77 per cent say this. Slightly fewer believed this in the United States; 70 per cent said it was likely (very 43 per cent, somewhat 27 per cent).

Figure x: Poll by GlobeScan Incorporated: "Climate change: A serious problem or not?" 25 April 2006. **Source**: <http://www.worldpublicopinion.org/pipa/articles/btenvironmentra/187.php?nid=&id=&pnt=187>. Reprinted with permission.	**Figure 5.:** Pew poll of 27 June 2007: "Is Global Warming a problem?" **Source**: <http://pewglobal.org/reports/display.php?ReportID=256>. Reprinted with permission.

[53] For a list of opinion polls on climate change as a security threat or concern; see at: < http://www.worldpublicopinion.org/pipa/articles/btenvironmentra/435.php?nid=&id=&pnt=435>:



In an analysis published on 5 December 2007, the World Public Opinion.Org stated that the the "concern about climate change appears to be growing":

> GlobeScan surveys have documented the world's increasing concern about climate change. In polls conducted across 16 countries in 2006 and 2003, the percentages calling climate change/global warming a 'very serious' problem increased an average of 16 points. In only one country was there a significant decline in the perceived severity of the problem of climate change. GMF has also found signs of increasing concern. In 10 European countries polled in 2005 and 2007, the average percentage saying that global warming is an extremely important threat went up 5 points (from 51 to 56 per cent). In the United States, this number went up 5 points (from 41 to 46 per cent). In most countries, majorities say that they have heard a significant amount about climate change. Not surprisingly, willingness to take action in regard to climate change rises with greater awareness.[54]

Thus, by the end of 2007, climate change was not only addressed by scientists, governments, and international organizations as an urgent security danger, it was also perceived by a majority of the people in many countries as a major new international, national, and human security concern. Since 2008, the impact of climate change on security in developing countries is also increasingly being addressed by the security community both for national security (e.g. by IDSA[55] in India) and from a human security perspective (by ISS in Pretoria).[56]

[54] "International Polls Find Robust Global Support For Increased Efforts to Address Climate Change", 5 December 2007; at: <http://www.worldpublicopinion.org/pipa/articles/btenvironmentra/435.php?nid=&id=&pnt=435>.

[55] See: Institute for Defence Studies and Analyses (IDSA): "Workshop on Security Implications of Climate Change for India: A Report" (New Delhi, 6 April 2008).

[56] See the workshop by ISS (Pretoria) with IDRC (Canada) on: "Climate change and human security in Africa" (Pretoria, South Africa, 27-28 February 2008);

4. Conclusions

Environmental issues have been framed as security issues since the Brandt (1980) and Brundtland Commission Reports (WCED 1987). A chapter in *Our Common Future* on the conceptual quartet of "Peace, Security, Development, and the Environment" set the stage for a policy debate on the widening of the security concept and agenda during the past two decades (Dabelko 2008). In June 1988, at the first world conference on climate change and global security in Toronto, as the first political leader, Norwegian Prime Minister Gro Harlem Brundtland addressed the linkage between both issues. In the scientific world, N. Brown (1989) and P. Gleick (1989, 1989a) were among the pioneers of the *securitization* of climate change.

In this paper, Wæver's theory of *securitization* and the approach of the Copenhagen school of critical security studies was applied to GCC. For this *securitization move* many *speech acts* have been conceptually mapped that have convinced a growing 'audience' that climate change poses existential security dangers in the framework of international, national, and human security, Extraordinary measures are needed to respond to these new security issues in a proactive and timely way, and to prevent that the projected policy consequences will become a catastrophic reality during the 21st century.

This review has documented a progressive *securitization* of GCC. But the turning point in the *securitization* of climate change occurred in 2007. UK Foreign Secretary Margaret Becket and the German state secretary in the foreign office, Georg Boomgaarden, argued that the security threats have fundamentally changed by focusing on the growing concentration of greenhouse gases in the atmosphere, on the increase in average global and regional temperature, and on the increase in the number, intensity, and economic damage from climate related hydrometeorological hazards.

The response to this new security danger is no longer provided by the Hobbesian logic guiding military establishments, but it relies on a common concerted global effort based on the ingenuity of engineers enhancing energy efficiency and reducing greenhouse gases through a fundamental transformation of the energy and transportation sectors. As the IPCC, as a knowledge-based epistemic community, has indirectly become a new *securitizing actor*, the response to this new security danger must be knowledge-based but it must be backed with the policy commitment and the financial resources of the states but also of societal and economic actors.

This emerging *securitization* process has been instrumental for mobilizing political support and public and private funds for the post 2012 climate change regime. Since the release of the fourth IPCC report (AR4) many international organizations have upgraded their climate change activities (e.g. World Bank, UNDP, UNEP, OECD), and their results will further improve our knowledge base and they may further enhance the public concern on the urgency of these new security threats, challenges, vulnerabilities, and risks posed by GCC.

On the assumed, claimed, and projected linkages between climate change and conflicts so far the knowledge base has been limited. Bulhaug, Gleditsch, and Theisen (2008) have pointed to a lack of systematic statistical data (on small-scale conflicts between nonstate actors) and of statistical analyses in the social sciences based on a high number of cases on past linkages. Many case studies – referred to above – resulted from commissioned studies for ministries, international organizations, and environmental and development NGOs, and were to satisfy specific policy needs. But in most cases they are not comparable and have not yet contributed to an accumulation of systematic knowledge.

The European Union in its paper on climate change and international security of 14 March 2008 proposed to "intensify EU capacities for research, analysis, monitoring and early warning". The British MoD has funded a major research project at the Hadley Centre to study these issues. The World Bank has launched a huge effort in preparation of its annual report

that is planned to address *Climate Change and Development* by 2010, and in the USA members of both Houses of Congress have requested an assessment by the US National Intelligence Council (CIA) and the US Department of Defense to assess the geopolitical impacts of climate change for US national security. It has also been suggested (Brauch 2002; Bulhaug/Gleditsch/Theisen 2008) to add the security dimension of climate change to the mandate of the IPCC and to its agenda for its fifth assessment report.

Whether the *securitization* of climate change issues will galvanize the extraordinary policy measures that are needed to reverse the direction of global warming depends on the outcome of the negotiations on the post 2012 global climate regime, whether substantial and legally binding agreements can be achieved at the COP 15 of the UNFCC in Copenhagen (2009), and also on the willingness of the countries not only to approve radical goals and measures but to fully implement them nationally. This raises many new issues of global equity but also of compliance.

The conceptual rethinking on security – both on the concept and even more on the substance – in the Anthropocene (Dalby 2008) has been spurned by the *securitization* of GCC. It remains a challenge both for policy relevant and theory guided conceptual thinking on security and peace but even more so for a new 'peace policy in the Anthropocene' that aims at responding proactively to the new security dangers posed by GCC (Conca/Dabelko 2002; Dabelko 2008; Brauch/Oswald 2009_99) to assist *Our Common Journey* (US NRC1999) toward sustainability.

But the needed proactive policy responses that have been suggested by the *Millennium Ecosystem Assessment* (MA 2003, 2005; Leemans 2009) require a new multi-, inter-, and transdisciplinary research agenda (Oswald/Brauch 2008) with qualitative and quantitative, historical and sociological methods, as well as modelling, simulation, and scenario-building motivated by the policy goal to develop early warning indicators and models to address the probable conflict constellations that may under certain societal and political conditions result in conflicts, and to develop strategies for *resolving* them peacefully, and *avoiding* such constellations from occurring and *preventing* an escalation into violent conflicts.

Brauch and Oswald (2009) have argued that the symbiosis of strategies for 'sustainable development' with a policy vision of a 'sustainable peace" as two goals of a new peace policy for the Anthropocene in the early 21st century requires a more fundamental rethinking of a comprehensive policy approach that includes the policy goals that have already been adopted in many international policy declarations (Agenda 21 of 1992; Millennium Development Goals of 2000; Policy Declaration and the Implementation Plan of the WSSD in 2002) and the normative scientific propositions on the precautionary principle, international peace with equity, on peace with nature or peace with the creation.

However, what has been lacking is a sufficient translation of this new knowledge into action and a transformation of these policy goals into policies and their effective implementation. The experiences with the guidelines adopted in the UNFCC (1992) and with the quantitative emission reduction goals approved in the Kyoto Protocol (1997) has been disappointing.

It will be seen whether the recent *securitization moves* of issues of climate change, water, desertification as well as the debate on environmentally induced forced migration will not only enhance the urgency of the security dangers and concerns posed by GEC and GCC but also lead to long-term and proactive policies as suggested in the framework of the *Sustainability First* scenario of UNEP and the *TechnoGarden* and *Adaptation Mosaic* scenarios of the MEA.

This requires to move a step further from understanding and *facing* these new security issues for the well-being, security and survival of future generations to concrete political, economic and societal strategies, specific policies and measures for *coping* with these new security dangers. This necessitates a fundamental change in our thinking on security and peace, where the past experience gained and the thinking of the past may offer little advice. Clark, Crutzen and

Schellnhuber (2004) proposed a new paradigm of a "science for global sustainability" as well as a "new contract for planetary stewardship." They argued:

> 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 (Clark/Crutzen/Schellnhuber 2004: 24).

For coping with GEC and GCC "management systems for a sustainability transition need to be systems for adaptive management and social learning" that "require appropriate information, incentives, and institutions" (Clark/Crutzen/Schellnhuber 2004: 20). This suggested scientific revolution must be translated into new international policies for the 21st century. International peace and security as the highest human and international policy goals of the UN charter require a policy strategy that combines sustainable development with sustainable peace.

Bibliography

The references for this paper may be downloaded in April/May 2009; through: SpringerLink; at: <http://www.springerlink.com>.