

FULL REPORT

# LINKING ENVIRONMENT AND CONFLICT PREVENTION

## THE ROLE OF THE UNITED NATIONS



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Paul Klee, Rosenwind 1922,39  
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## Foreword

The relevance of how environmental factors influence violent conflicts tends to be either exaggerated or underestimated. Moreover, climate change and oil are often emphasized as the most important environmental conflict factors as they are presently high on international agendas.

This report argues that different types of environment-related conflicts must be acknowledged in order to achieve appropriate responses from the United Nations and other actors. It underlines the need to consider low-level conflicts over the use of the environment as carefully as the more highly escalated 'oil-type' conflicts. Although they are often unspectacular – due to few battle deaths – they are nevertheless highly relevant in their aggregation, because they have the potential to destabilize local areas, which in turn may have regional and global repercussions.

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## Acronyms and Abbreviations

AEE	New Zealand's Assessment of Environmental Effects
AEIN	The Africa Environment Information Network
AEO-2	Africa Environment Outlook
AFPU	Agro-Food Processing Unit
BCPR	UN Development Programme's Bureau for Crisis Prevention and Recovery
C/RSPs	Country and Regional Strategy Papers
CA	Conventional Agriculture
CAF	World Bank Conflict Analysis Framework
CBD	Convention on Biological Diversity
CCA	The Common Country Assessment
CGIAR	Consultative Group on International Agricultural Research
CIDA	Canadian International Development Agency
CPA	Comprehensive Peace Agreement
CPM	Conflict Prevention Measure
CPN	Conflict Prevention Network
CPR	World Bank Conflict Prevention and Reconstruction Unit
DEWA	Division of Early Warning and Assessment
DGO	Development Group Office
DPA	Department of Political Affairs
DPKO	Department of Peacekeeping Operations
DU	Depleted Uranium
ECA	Economic Commission for Africa
ECLAC	Economic Commission for Latin America
ECOSOC	Economic and Social Council
ECP	Committee on Environmental Policy of the UNECE
ECPI	Environment and Conflict Prevention Initiative
ECRI	Emerging and Conflict Related Issues
ECSP	Environmental Change and Security Project
EEZ	Exclusive Economic Zone
EIA Law	Chinese Environmental Impact Assessment Law
EITI	Extractive Industries Transparency Initiative
ENMOD Treaty	Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques
ENVSEC	Environment and Security Programme
ERG	Expert Reference Group
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
EU	European Union

EUEI	EU Energy Initiative for Poverty Eradication and Sustainable Development
EUWI	EU Water Initiative
FAO	Food and Agricultural Organization
FLEGT	EU Action Plan for Forest Law Enforcement Governance and Trade
FSC	Forest Stewardship Council
G8	Germany, France, Italy, Great Britain, US, Canada, Japan, Russia
GEF	Global Environmental Facility
GEOSS	Global Earth Observation System of Systems
GMES	Global Monitoring for Environment and Security
GRID	Global Resource Database
ICG	International Crisis Group
ICMM	International Council of Mining and Metals
ICPD	International Conference on Population and Development
ICWE	International Conference on Water and the Environment in Ireland
IDEA	Institute for Democracy and Electoral Assistance
IECs	International Environmental Conflicts
IFRC	The International Federation of Red Cross and Red Crescent Societies
ILO	International Labor Organization
IMF	International Monetary Fund
IPCC	The Intergovernmental Panel on Climate Change
iQSG	EU interservice Quality Support Group
IUCN	The World Conservation Union
IWRM	Integrated Water Resource Management
KP	Kyoto Protocol
KPCS	Kimberley Process Certification Scheme
MDGs	The Millennium Development Goals
MEAs	Multilateral Environmental Agreements
MSC	Marine Stewardship Council
MSP	Medium Size Project
MSU	Mediation Support Unit (of the DPA)
NCP	Sudanese National Congress Party
NCSA	National Capacity Self-Assessment Project
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organization
OA	Organic Agriculture
OAS	Organization of American States
OSCE	Organization for Security and Cooperation in Europe
PBSO	Peacebuilding Support Office
PCB	Peacebuilding Commission



PCCP	From Potential Conflict to Co-operation Potential
PCDMB	Environment Programme Post-Conflict & Disaster Management Branch
PCNA	Post Conflict Needs Assessment
PreView	Project for Risk Evaluation, Vulnerability, Information & Early Warning
REC	Regional Environmental Center for Central and Eastern Europe
SC	UN Security Council
SCP	Sustainable Consumption and Production Initiatives
SG	UN Secretary-General
SPLM/A	Sudan People's Liberation Movement/Army
SRSR	UN Special Representative of the Secretary-General
TRIB	Transboundary River Basin Initiative
UN	United Nations
UN CSD	UN Commission on Sustainable Development
UN DESA	UN Department of Economic and Social Affairs
UNCCD	UN Convention to Combat Desertification
UNCED	UN Conference on Environment and Development
UNCLOS	UN Convention on Law of the Sea
UNCSD	UN Commission on Sustainable Development
UNDG	UN Development Group
UNDP	UN Development Programme
UNECE	UN Economic Commission for Europe
UNEP	UN Environment Programme
UNESCAP	UN Economic and Social Commission for Asia and the Pacific
UNESCO	UN Educational, Scientific and Cultural Organization
UNESCWA	UN Economic and Social Commission for Western Asia
UNFCCC	UN Framework Convention on Climate Change
UNFPA	UN Population Fund
UNHCR	UN High Commissioner for Refugees
UNICEF	UN Children's Fund
UNIFEM	UN Development Fund for Women
UNISDR	UN International Strategy for Disaster Reduction
UNITAR	UN Institute for Training and Research
UNMIS	UN Mission to Sudan
UNU	UN University
VPA	Voluntary Partnership Agreement
WaDImena	Regional Water Demand Initiative for the Middle East and North Africa
WB	World Bank
WCPA	World Commission on Protected Areas
WDM	Water Demand Management

WFP	UN World Food Programme
WMO	World Meteorological Organization
WSM	Water Supply Management
WSSD	World Summit for Sustainable Development
WTO	World Trade Organization

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## Executive Summary

This report examines the links between environment and violent conflict, and explores the role of the United Nations in preventing conflicts related to environmental factors.

### 1. Links between environment and conflict

**Key message:**

**Environmental factors play a key role in many conflicts, yet they are always interlinked with political, economic, and socio-cultural factors. Different types of environment-related conflicts are influenced by particular trends and call for differentiated responses.**

Three types of environment-related conflicts can be identified:

First, the **indirect use**, ‘**resource curse**’ type conflict involves the extraction and trade of valuable natural resources that are globally scarce, but locally abundant. Such conflicts are often linked to highly escalated conflict dynamics. These conflicts can be prevented through measures that attempt to increase good governance in resource-rich countries and through global norms that regulate the international flow of finances and goods related to natural resources.

Second, the **direct use**, ‘**local and regional resource scarcity**’ type conflicts are generally at a low or medium escalation level. In the aggregate, however, they can be a key factor in detrimental destabilization processes. Measures to deal with such conflicts include culturally sensitive development and enforcement of property rights; approaches to support participatory resource and conflict management; and the development of options for sustainable livelihoods for the affected population. Global measures to mitigate climate change and help vulnerable communities adapt to it constitute further important lines of preventive action.

A third form of environment-related conflicts, characterized more by the level of escalation than

the form of resource use, are **complex conflict ‘hot spots’**, where both of the above types of conflict can appear in addition to the prevailing dynamics of highly escalated conflicts. Mediation, wealth-sharing, peacekeeping operations, and peacebuilding are needed to deal with such conflicts.

To achieve UN reform, the direct use type of conflict has the potential to provide a good entry point. It is not as sensitive as ‘conflict hot spots’ and has not been discussed as extensively as indirect, resource curse type conflicts. By simply promoting the efficient and equitable use of environmental resources, environmental conflict prevention can be achieved.

### 2. The role of the United Nations

**Key message:**

**The UN has unique roles to play in the prevention of environment-related conflicts, as it has expertise and legitimacy in both ‘environment’ and ‘conflict prevention’. Using synergies between these two fields would greatly enhance effectiveness. The topic of ‘environment and conflict prevention’ should be further integrated within existing UN units, rather than improperly mainstreaming it by tagging it on as a separate issue.**

The comparative advantages of the UN include its specific programmes, long-term expertise, financial opportunities and international legitimacy in the fields of both ‘environment’ and ‘conflict prevention’. Yet the UN’s conflict prevention potential is left largely untapped due to its segregated and top-down problem-solving approach, its cumbersome bureaucracy, the divided interests of member states, its difficulty to keep sensitive information confidential, and its tendency to offer ‘one-size-fits-all’ solutions to local problems.

This report explores various measures to improve the effectiveness of UN conflict prevention. These measures, however, should avoid any increase in UN bureaucracy:

At the **global level**, possible measures to enhance coordination include inter-agency secondments, collaborative initiatives such as the Environment and Security Initiative (ENVSEC), environmental dimensions in need assessment toolkits, training workshops, and cooperation focused on specific conflict prevention measures. To be effective, environmental factors need to be integrated in the various other dimensions of conflict prevention. At the organizational level, this means integrating the environmental topic within the existing UN units instead of tagging it on as an extra issue in a separate department.

At the **country level**, possible measures include inter-departmental efforts in conflict regions following the ‘One UN’ approach and joint Third Party teams including mediators and environmental experts, e.g. put together by Special Representatives of the Secretary-General.

UN entities that take the prevention of environment-related conflicts into consideration include:

- **Department of Political Affairs (DPA):** The DPA has a central role in operational conflict prevention and in monitoring which types of conflict need to be dealt with. Greater awareness of how environmental factors relate to the various types of conflict would be beneficial.
- **Department of Peacekeeping Operations (DPKO):** The DPKO is important in operational conflict prevention. A key challenge for the DPKO is how to deploy its peacekeeping troops in an environmentally sensitive manner, to avoid damage that could aggravate future conflicts.
- **UN Environment Programme (UNEP):** UNEP is strong in collecting and analyzing environmental data that is central to dealing with environment-related conflicts. UNEP produces assessments of environment and security risks through the Environment and Security Initiative, which aims at increased trans-boundary cooperation in South Eastern and Eastern Europe as well as

Caucasus and Central Asia. UNEP’s “Environmental Diplomacy” project seeks to use the shared management of the environment to foster cooperation in regions vulnerable to conflict. Greater expertise on the various conflict and mediation dimensions could increase the effectiveness of UNEP’s efforts. UNEP could benefit from greater collaboration with the DPA and other agencies that possess competence in conflict prevention.

- **UN Development Programme (UNDP):** UNDP has experience in managing development and reconstruction programmes, an essential element of most conflict prevention measures. The nexus between environment, conflict and development, which UNDP can address, is especially relevant for conflicts related to local and regional resource scarcity.
- **Food and Agriculture Organization (FAO):** The role of the FAO is central to food, water and land security that are related to the direct use form of conflicts. One key challenge is how to link the grass-roots level of conflict management with the political level of the state.
- **Security Council (SC), Secretary-General (SG), and Special Representatives of the Secretary-General (SRSGs):** Resolutions of the SC have the potential to legitimize and support measures seeking to prevent environment-related conflicts. SC resolutions have, for example, supported initiatives such as the Kimberley Process. However, at present this forum has only focused on the resource curse of diamonds, and has not pushed to address other pertinent issues, such as climate change – mainly due to resistance from key states. Raising a topic to the level of the SC can also hinder its promotion, as member states fear encroachment on their sovereignty or national interests. The SG has a key role in creating awareness concerning the environmental dimensions of conflicts. SRSGs are important and reliable resources

to aid the SG in overcoming some of the bureaucratic inflexibility of the various agencies, e.g. by proposing mixed UNEP and DPA teams.

### 3. Environmental conflict prevention measures

#### Key message:

**The UN's role in implementing environmental conflict prevention measures should be enhanced, especially with regard to:**

- **the regulation of financial flows related to natural resources;**
- **the culturally-sensitive use of property rights in preventing conflicts;**
- **mediation combined with environmental expertise to support participatory resource and conflict management;**
- **providing marginalized parts of societies with new options for sustainable livelihoods.**

The third part of the report collects 26 environmental conflict prevention measures (CPMs) that address the underlying environmental trends and driving factors potentially escalating a conflict (structural conflict prevention) and/or aspects of conflict dynamics where the environment plays a key role (operational conflict prevention).

### Conclusion and Recommendations

The prevention of environment-related conflicts requires a balance between ecology and politics, a balance that varies depending on the case and the level of engagement.

At the country level, this means considering the physical situation and dynamics of the ecosystem, yet also carefully engaging with national and local actors. For to be effective, conflict prevention measures need to be locally developed, supported and legitimized. Adopting a purely standardized, technical approach – overly depoliticizing conflicts – leads to unsustainable solutions.

At the global level, the ecological facts and conflict patterns that call for the adoption of global measures to counteract environmental dimensions of conflict tend to be widely acknowledged. However, these measures are often not adopted because of the politicization of the topic by UN member states when obstructionism suits their domestic economic or political interests. In summary, key recommendations of the study are to:

**Focus on transversal approaches to conflict prevention:** The environmental factor should be treated as one factor among, and in tight interplay with, political, economic, and socio-cultural factors.

**Differentiate conflict types:** Differentiating environment-related conflict types (indirect resource use, direct resource use and conflict 'hot spots') helps to identify optimal conflict prevention strategies. Institution building and good governance are important for all types.

**Support norms on natural resource use:** Globally accepted norms and charters on how to regulate the international flow of finances and goods related to natural resources would be a key step in preventing 'resource curse' type conflicts.

**Support public participation and sustainable livelihoods:** The participation of local and national stakeholders in conflict prevention processes is an important element in assuring that the adopted measures are legitimate and sustainable, and in avoiding the danger of overly depoliticizing conflicts at the country level. Providing sustainable livelihoods to all parts of society is paramount to keeping society's conflict prevention capacity intact.

**Tap UN synergies and take appropriate and concrete action:** Synergies between the UN units focusing on the environment (e.g. UNEP) and those on conflict prevention (e.g. DPA) need to be utilized to a greater extent. Stronger emphasis should be given to conflict prevention in all conflict phases, instead of focusing primarily on post-conflict measures. More concrete action, jointly agreed and supported by the (potential) conflict parties, is called for.

*“... when resources are scarce – whether energy, water or arable land – our fragile ecosystems become strained, as do the coping mechanisms of groups and individuals. This can lead to a breakdown of established codes of conduct, and even outright conflict.”*

UN Secretary-General Ban Ki Moon<sup>1</sup>

## Introduction

This report aims to show what the UN can do to prevent conflicts and insecurity that are related to the use of natural resources and the natural environment. The study seeks to answer the following questions:

1. How are the environment and (violent) conflict linked?
2. What is the role of the UN in preventing environment-related conflicts?
3. What measures exist to increase the UN's effectiveness in this area?

In the study we summarize central links between environment, natural resources and violent conflict and insecurity. We identify three groups of conflict related to the environment, and driving factors and trends that influence these conflicts (part 1). Secondly, we present an overview of what the UN and its agencies are already doing to address this question (part 2). And thirdly, we indicate concrete existing measures that could be strengthened or adopted in the future (part 3). We do not, however, deal with the environmental impacts of violent conflict.

## Motivation and rationale

Self-interest in assuring global security, co-responsibility and solidarity are three main motivations for greater efforts to prevent violent conflict. Violent conflicts are not only detrimental to those directly affected by them,

but can also have negative regional and global repercussions.<sup>2</sup> The prevention of such conflicts therefore lies at the heart of increasing local, regional and global security. In regard to conflicts over natural resources, affluent countries share co-responsibility as they utilize both abundant and scarce resources that may be causing conflicts in another part of the world. Finally, solidarity and humanitarian concern for those negatively affected by conflicts is another important motivation for conflict prevention. The rationale for the particular focus on the UN and the environment in this study lies in the growing awareness that the UN plays a key role in conflict prevention, but has so far insufficiently addressed the role of the environment and natural resources. This was indicated by various recent debates in the UN Security Council<sup>3</sup>, which called for a greater focus on the environment as a factor in conflict prevention. In response, the Swiss Federal Department of Foreign Affairs mandated the Center for Security Studies at ETH Zurich, and swisspeace, Bern, to produce this joint study.<sup>4</sup>

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1 Ki-moon, Ban, UN Secretary-General, Statement at the Security Council debate on energy, security and climate. Posted by: admin on Apr 18, 2007, <http://www.undpi.org/index.php?name=News&file=article&sid=171> (12.1.2008).

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2 Impacts of insecurity and conflict – that often have an environmental factor playing a role – are detrimental locally, regionally and globally. Negative impacts include: forced migration, spread of diseases, malnutrition, economic decline, organized crime, terrorism, proliferation of arms, social polarization and general situation of destabilization and precarious livelihoods. The accumulation of these impacts pose a global security threat.

3 Security Council Sixty-second year, 5663rd meeting, August 17, 2007 (climate change). Security Council sixty-second year, 5705th meeting, June 25, 2007 (Debate on natural resources and conflict)

4 Both institutions have been involved in research on the links between environment, conflict and cooperation since 1992, when the topic first appeared on the international agenda. See ENCOPI <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&cid=235> (12.1.2008); ECOMAN (Baechler, G.; Spillmann, K. R. and Suliman, M. (eds.), 2002:

## Conceptual framework and methodology

A core approach used in this report is to sub-divide ‘environmental conflicts’ in order to assess appropriate conflict prevention measures (for the three conflict types see figure 1). These conflicts are influenced by various environmental, socio-cultural, economic and political driving factors. Conflict prevention measures can be divided into a) structural conflict prevention, focusing on long term prevention of crises and their underlying driving factors, and b) operational conflict prevention, which deals with measures applicable in the face of an immediate crisis (see figure 1).

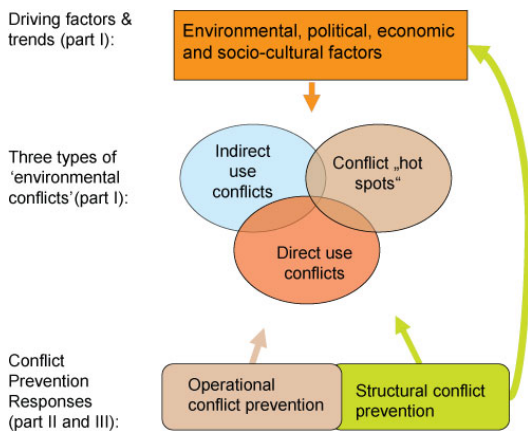


Figure 1: Environmental conflict prevention measures aim to address different types of environmental conflict as well as the underlying trends and driving factors.

Methodologically, the study mainly uses existing research literature and relevant reports, compiling them around the key questions outlined above. Various external experts were

consulted<sup>5</sup> for feedback and clarity on the key theses of this report.

## Definitions

With the term ‘*conflict*’ we refer to violent inter-group interaction. We focus on violent conflicts that lead, or can potentially lead, to death and that pose a major threat to human life. Although this is narrower than conflict used in the very wide sense (e.g. referring to competition between actors), it is broader than definitions of armed conflict<sup>6</sup> or war<sup>7</sup>, which stipulate certain numbers of casualties per year. This broader definition allows us to conceptually grasp conflicts at a lower escalation level.

The imprecise terms ‘*environmental conflicts*’ and ‘*resource conflicts*’ refer to the types of conflict we focus on, yet such labels are misleading to the degree that they suggest conflicts as mono-causal phenomena, i.e. that a specific ‘resource’ or ‘environmental state’ leads to these violent conflicts. Although environmental factors play a role in many conflicts, a clear causal link between the environment and violent conflicts is rare. The term ‘environment-related conflicts’ is more accurate – although it is less common. It reflects a focus on conflicts that are related to the use of the environment, yet are not caused by it in any deterministic manner. We argue that the

*Transformation of Resource Conflicts: Approach and Instruments*, Bern, Switzerland: Peter Lang, Summary, <http://www.ikaoe.unibe.ch/forschung/nordsued/ns.ba nd3.html> (12.1.2008); ECONILE and NCCR North South: *Environmental Change and Conflict Transformation* <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&i d=14399> (12.1.2008) and <http://www.nccr-north-south.unibe.ch> (12.1.2008).

5 Jon Martin Trondalen (Compass), David Jensen (UNEP), Silja Halle (UNEP), Julian Thomas Hottinger (Swiss DFA), Christine Bichsel (expert on Central Asia) and Tobias Hagmann (University of Zurich).

6 Definition of Armed conflict: “An armed conflict is a contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths.” Department of Peace and Conflict Research, Uppsala University, modified 2006-10-15, [http://www.pcr.uu.se/research/UCDP/definition\\_of\\_armed\\_conflict.htm](http://www.pcr.uu.se/research/UCDP/definition_of_armed_conflict.htm) (12.1.2008).

7 Definition of War: “at least 1000 battle-related deaths in a year.” Department of Peace and Conflict Research, University of Uppsala: *Conflict database, Definitions*, [http://www.pcr.uu.se/database/definitions\\_all.htm](http://www.pcr.uu.se/database/definitions_all.htm) (12.1.2008).

environment should be seen as a transversal topic (affecting all UN agencies), as it is always interlinked with security, socio-cultural, economic and political 'fields'.

We use the term '*conflict prevention*' to refer to both structural and diplomatic measures to assist national actors in keeping intra-state and inter-state tensions from escalating into violent conflict, in all phases of a conflict cycle (pre-, in, post-conflict). Thus we do not merely focus on the post-conflict recovery phase (which is, for example, one of the foci of UNEP when dealing with conflicts). We will use the UN distinction between '*operational prevention*', which deals with measures applicable in the face of an immediate crisis, and '*structural prevention*' which focuses more on the long term prevention of crises.<sup>8</sup>

As we seek to focus on measures to deal with a conflict rather than just analyzing its causes, we also use '*conflict transformation*' approaches in our study. In the conflict transformation approach, conflicts are seen as socially and culturally constructed. While the environment may play a role, the norms, values and 'mind sets', as well as the language and form of

interaction within and between social groups, greatly shape how and if environmental factors lead to conflict or to cooperation. Environment-related conflicts are therefore a question of the *human use* of natural resources and the environment. Since many of today's conflicts no longer fit classical 'national security' paradigms, we will use the individual and population-focused 'human security'<sup>10</sup> concept. Moreover, we use the umbrella term '*environmental security*' referring to freedom from environmental destruction and resource scarcity that pose major threats to human life, consisting of: 1) conflicts where the environment and natural resources play a key role, the main focus of this report, 2) environmental threats to societies and peoples' livelihoods other than related to direct violent conflict, and 3) diminishing ecological carrying capacity, e.g. issues of sustainable development.<sup>11</sup>

With the term '*natural resources*' we refer to "materials or substances such as minerals, forests, water, and fertile land that occur in nature and

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8 "The prevention of armed conflict is an exercise of sovereign responsibility. The prevention of armed conflict includes any structural or diplomatic measures to keep intra-state or inter-state tensions and disputes from escalating into deadly violence. These measures are primarily intended to assist national actors in resolving such disputes peacefully, and to progressively reduce the underlying causes of the tension or disputes (structural or long term prevention). (...) Strategies for prevention fall into two categories: 1) operational prevention, which refers to measures applicable in the face of an immediate crisis, and, 2) structural prevention, which consists of longer-term measures to ensure that crises do not arise, or, if they do, that they do not recur." Annan, K., 2001: *Prevention of armed conflict: Report of the Secretary-General*, A/55/985 S/2001/574, United Nations, June 7, 2001, <http://www.undp.org/cpr/documents/prevention/SG%20report%20on%20prevention%20of%20armed%20conflict.pdf> (12.1.2008).

9 Lederach, J. P., 2005: *The Moral Imagination. The Art and Soul of Building Peace*, Oxford: Oxford University Press.

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10 On the academic and policy debates of the concept, see Commission on Human Security, 2003: *Human Security Now*, New York, <http://www.humansecurity-chs.org/finalreport/index.html> (12.1.2008); Human Security Centre, 2005: *Human Security Report 2005*, Oxford: Oxford University Press, <http://www.humansecurityreport.info/> (12.1.2008).

On the link between human security and conflict prevention, see Schnabel, A., 2004: *Human Security and Conflict Prevention*, in: Carment, D. and Schnabel, A. (eds.): *Conflict Prevention from Rhetoric to Reality: Opportunities and Innovations*, Lanham, Maryland: Lexington Books:109-131.

On the practical application of the human security concept, see the swisspeace's Human Security Research Programme: *Operationalizing Human Security*, <http://www.swisspeace.ch/typo3/en/peace-conflict-research/human-security/projects/ophusec/index.html> (12.1.2008).

11 Gleditsch, N. P., 2007: *Environmental Change, Security, and Conflict*, in: Chester C.; Hampson F. O. and Aall P. (eds.): *Leashing the Dogs of War: Conflict Management in a Divided World*, Washington, DC: United States Institute of Peace Press, in press (C), <http://hei.unige.ch/sections/sp/courses/0607/gleditsch/readings/Gleditsch-ENVIRONMENTAL-CHANGE-SECURITY-AND-CONFLICT.pdf> (12.1.2008).



can be used for economic gain.”<sup>12</sup> The term ‘*environment*’ is used in a broader manner compared to ‘*natural resources*’, giving greater emphasis to the holistic, systemic dimensions and not only to economically exploitable resources.

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12 The Oxford Pocket Dictionary of Current English 2008, originally published by Oxford University Press 2008.

## Part 1: Environment and Conflicts: State of the Art

### Key Message:

**Environmental factors play a key role in many conflicts, yet they are always interlinked with political, economic, and socio-cultural factors. Different types of environment-related conflict are influenced by particular trends and call for differentiated responses.**

### Introduction

This section highlights key research findings about the role the environment and natural resources play in causing, prolonging and intensifying violent conflicts and insecurity. Firstly, the various, and at times contradictory, branches of research are summarized. Secondly, a categorization of environment-related conflicts is presented focusing on the use of the environment use. This highlights what kind of environmental use is related to which types of conflict. Thirdly, boundary conditions, trends and impacts that could ease or worsen conflicts and insecurity are identified in order to estimate probable changes in the coming decades, such as those related to climate change. This part serves as the basis of a discussion of conflict prevention measures, which will be outlined in parts 2 and 3 of this report.

### 1.1 Research on the links between environment and conflict

Resource conflicts are as old as humanity: in the period 1648-1989, 80-90 percent of the wars involved territorial issues. In the period 1946-2004 60 percent of the 227 conflicts broke out over territorial issues – and 40 percent over government politics.<sup>13</sup> Yet the upsurge in

research examining the links between the environment (other than territory) and conflicts only goes back to the early 1990s, where the demise of the Cold War led to a more comprehensive view of security, which also focussed on environmental factors. Four broad groups of research approaches are summarized in the next sections, highlighting their main foci, plus differences and/or criticisms related to each other. Key findings are then presented.

#### 1.1.1 Neo-Malthusian case study approach: 'environmental conflicts'

Initial 'environmental conflict' research in the 1990s largely used cases studies focusing on the links between renewable resources, environmental degradation and violent conflict. The underlying key hypothesis was that the environment determines human behaviour, and that conflicts over scarce resources become more likely with a rising global population that depends on natural resources on a daily basis. Two research groups were active in the early 1990s, the 'Toronto group' around Thomas Homer Dixon<sup>14</sup>, and the 'Swiss group' around Günther Baechler and Kurt Spillmann (ENCOP studies).<sup>15</sup> In general, these authors described

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[/readings/Gleditsch-ENVIRONMENTAL-CHANGE-SECURITY-AND-CONFLICT.pdf](#)  
(12.1.2008).

- 14 For example: Trudeau Centre for Peace and Conflict Studies at the University of Toronto: *The Project on Environmental Scarcities, State Capacity, and Civil Violence*, <http://www.library.utoronto.ca/pcs/state.htm> (12.1.2008).
- 15 Baechler, G. and Spillman, K. R. (eds.) 1996a: *Environmental Degradation as a Cause of War, Regional and Country Studies of Research Fellows*, Vol. 2 (of 3 Volumes), Chur and Zürich, Switzerland: Rüegger.
- Baechler, G. and Spillman, K. R. (eds.) 1996b: *Environmental Degradation as a Cause of War, Country Studies of External Experts*, Vol. 3 (of 3 Volumes), Chur and Zürich, Switzerland: Rüegger.
- Baechler, G.; Spillman, K. R. and Suliman M. (eds.) 2002: *Transformation of Resource Conflicts: Approach and Instruments*, Bern, Switzerland: Peter Lang. Summary under: <http://www.ikaoe.unibe.ch/forschung/nordsued/ns.baend3.html> (12.1.2008).

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13 Gleditsch, N. P., 2007: *Environmental Change, Security, and Conflict*, in: Chester C.; Hampson, F. O. and Aall, P. (eds.): *Leashing the Dogs of War: Conflict Management in a Divided World*, Washington, DC: United States Institute of Peace Press, in press, <http://hei.unige.ch/sections/sp/courses/0607/gleditsch>

cases where environmental degradation and relative resource scarcity were linked to sub-national conflicts, mainly in poor countries with subsistence economies. The case studies showed that the 'intermediary' political, economic and socio-cultural factors were vital in determining if and when a situation of scarcity or degradation led to violence or not.<sup>16</sup> The ENCOP studies emphasized how the scarcity of resources may lead to cooperation instead of conflict, as in the Jordan framework agreement of 1994 between Israelis, Palestinians and Jordanians.<sup>17</sup>

### 1.1.2 Political economy and statistical methodologies: 'resource conflicts'

Research in this group is made up of methodological criticism<sup>18</sup> of the case study approach, as well as a growing focus and convergence of economic and political science methods in the analysis of resources as causes of conflict, especially focusing on non-renewable resources such as oil and lootable resources such as diamonds. Evidence from 'large n' statistical studies indicated that relative resource abundance (a 'resource curse'), such as in oil or minerals, were correlated to armed conflicts.

There was little statistical evidence confirming the link between the scarcity of water or agricultural products and armed conflicts.<sup>19</sup> A second sub-branch of this group, led by Gleditsch at the International Peace Research Institute in Oslo, focused on using 'large n' methodologies to test Neo-Malthusian hypotheses claiming that scarcity and resource overuse leads to conflicts. No clear evidence supporting this thesis was found, although generally this branch of research only examined environmental insecurity when related to more than 25 battle deaths per year. Lower levels of conflict and non conflict-related dimensions of environmental security were generally not examined.

### 1.1.3 Post-positivist, and political ecological approaches: 'eco-political conflicts'

Coming from a different angle, various authors<sup>20</sup> criticized the 'Neo-Malthusian' assumptions that the environment determines human behaviour, and that resource conflicts are unavoidable with increasing global population pressure. They also criticized the positivist 'large n' studies, which were not able to demonstrate how societies construct the human-environment interaction, and how this relates to conflictive or cooperative behavior. This branch of research also criticized the dominant western policies of locating the 'problem' in the South, while avoiding the co-responsibility for resource depletion and related conflicts by the affluent countries in the North.<sup>21</sup> There was also a growing call to move away from

16 Baechler, G, 1999: *Violence through environmental discrimination: causes, Rwanda arena, and conflict model*, Dordrecht: Kluwer Academic Publishers.

17 Trondalen, J. M., 1997: *Troubled Water in the Middle East: the Process Towards the First Regional Water Declaration between Jordan, Palestinian Authority, and Israel*, Natural Resources Forum, 9(2): 101-108, Elsevier Science.

Libiszewski, S., 1995: *Water Disputes in the Jordan Basin Region and their Role in the Resolution of the Arab-Israeli Conflict*, ENCOP working paper, CSS / Swisspeace, <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&cid=248> (12.1.2008).

18 Gleditsch, N. P., 2001: *Armed Conflict and the Environment*, in: Diehl, P. F. and Gleditsch, N. P. (eds.): *Environmental Conflict*, Boulder, US: Westview Press, pp. 251-272 for example pointed out that the case studies of the Toronto and ENCOP research were often chosen without the independent variable "environmental scarcity", or the dependent variable "conflict" having any alternative (environmental abundance, cooperation). Some sort of link between scarcity and degradation on the one hand, and violent conflict on the other hand, was therefore given from the start.

19 De Soysa, I., 2002: *Ecoviolence: Shrinking Pie, or Honey Pot?* Global Environmental Politics, 2(4):1-34.

20 Barnett, J., 2001: *The Meaning of Environmental Security*, London and New York: Zed Books.

Barnett, J., 2000: *Destabilizing the Environment-Conflict Thesis*, Review of International Studies, 26: 271-288.

Dalby, S., 2004: *Exorcising Malthus' Ghost: Resources and Security in Global Politics*, Geopolitics, 9(1): 242-254.

Hagmann, T., 2005: *Confronting the Concept of Environmentally Induced Conflict*, Peace, Conflict and Development, 6(6): 1-22.

21 Peluso, N. and Watts, M. (eds.) 2001: *Violent Environments*, Ithaca: Cornell University Press: 3-38.

analyzing conflict causes, to focusing also on resource and conflict management strategies.<sup>22</sup> A key argument of this social constructivist approach is that one cannot start with the resource, but should rather start with social groups as the focus of one's research. It is not resource scarcity that, via various intermediary political, economic or socio-cultural variables, leads to violence, as the neo-Malthusian case study approach would argue. Rather, environment is one factor that has a parallel impact together with political, economic, and socio-cultural factors.<sup>23</sup> Focusing on social groups and interaction between these groups allows examining violence as a multi-faceted, systemic phenomena, rather than as an (albeit complex) linear model of cause and effect.

#### 1.1.4 Convergence of resource and conflict management approaches

Another branch of research on the links between environment, conflict and cooperation can be identified as consisting of two converging strands: a) resource and b) conflict management approaches.<sup>24</sup> Previous research on resource management often dealt with environmental insecurity unrelated to conflicts. Yet because

resource management often entailed measures addressing different social groups, participatory and conflict management measures were often needed. Comparatively, conflict management researchers and practitioners realized that, in many conflicts, resource use and environmental aspects also play a significant role. Thus, better management of the resource itself becomes important to adequately deal with the conflict. This research branch includes agricultural, economic, political and social science disciplines. Further, it sides with the post-positivist approaches in that it also acknowledges the importance of the social groups and socio-cultural factors, but it places more emphasis on the 'positivist' availability of resources and the technical, political, institutional and economic means for the management of them. While no specific 'schools of thought' can be identified, there is growing consensus on some issues. For example, the necessity to implement integrative solutions and the importance to cooperatively include all stakeholders affected, such as practised in 'Integrated Water Resource Management'.<sup>25</sup> The further development of the 'Swiss' approach to environmental conflicts is to be situated in this branch of research, starting with the project 'Environmental Conflict Management in the Horn of Africa' in 1996.<sup>26</sup> The present study can also be situated in this line of research.

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22 Mason, S., and Muller, A., 2007: *Transforming Environmental and Natural Resource Use Conflict*, in: Cogoy, M. and Steininger, K. W. (eds.): *The Economics of Global Environmental Change - International Cooperation for Sustainability*. Cheltenham, UK/Northampton, MA, USA: Edward Elgar  
<http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=29883> (12.1.2008).

Hagmann, T., 2005: *Confronting the Concept of Environmentally Induced Conflict*, in: *Peace, Conflict and Development*, 6(6): 1-22.

23 Point highlighted by Alemmaya Mulugeta at the workshop: *Environmental Conflicts: Experiences from Africa and Central Asia*, June 8, 2007, NCCR North-South, Europainstitut of the University of Basel.

24 Luzi, S., 2007: *International River Basins: Management and Conflict Perspectives*, ISN publishing house,  
<http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=30002> (12.1.2008). It was originally published as: Luzi, S., 2007: *Les bassins hydrographiques internationaux : conflits et gestion des ressources hydriques*, Les Cahiers de la Sécurité, Numéro 63.

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25 Luzi, S., 2007: *International River Basins: Management and Conflict Perspectives*, ISN publishing house,  
<http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=30002> (12.1.2008). It was originally published as:

Luzi, S., 2007: *Les bassins hydrographiques internationaux : conflits et gestion des ressources hydriques*, Les Cahiers de la Sécurité, Numéro 63.

26 ECOMAN and 'Environment and Cooperation in the Nile Basin' (ECONILE) was also led by Günther Baechler (swisspeace) and Kurt Spillman (CSS ETH Zurich). Further research took place in the NCCR North South 'Environment and Conflict Transformation' project led by Laurent Goetschel (swisspeace).

## Summary

The various branches of research which link the environment and conflict give an omnifarious picture, due to the fact that they often use very different methods and discuss diverse phenomena. The case study approach could not prove clear causalities, but rather demonstrated that in poor and politically unstable countries, resource scarcity and environmental degradation were at times linked to violent conflict, mediated however by political, economic and socio-cultural ‘intermediary variables’. The statistical studies (generally defining conflict as armed conflict with at least 25 battle deaths per year) showed a causal relation in regard to oil and lootable resources (diamonds, timber, drugs) and armed conflicts, although these resources sometimes act as conflict sustainers rather than as conflict starters. The studies could not find a clear link between renewable resources such as water and legal agricultural products and violent conflicts. The post-positivist approach moved away from the focus on resources, putting social groups embedded in ecosystems at the center of their analysis. From this angle, all conflicts are ‘embedded’ in an environmental, socio-cultural, political, and economic context. If conflict prevention is to be sustainable, it needs to focus on how these factors are intertwined. Finally, the fourth approach is more eclectic and multidisciplinary. It focuses on resource and conflict management, but uses and partly integrates the findings and concepts from the other three ‘research schools’. Following this last approach, the next section seeks to group various types of conflict related to the environment in such a way as to facilitate our subsequent search for appropriate responses and measures to resolve these conflicts – rather than according to one or the other ‘school’ identified above.

## 1.2 Conflicts over the use of natural resources and the environment

The various findings as well as the focus of this study call for a categorization of conflicts that is useful to structure the historical and institutional assessment in part 2 and to group the measures and responses of part 3. To do this, we use a matrix (see table 1) that combines the type of environmental use with the economic and political context. This clarifies which types of conflicts (characterized by a certain use/context combination) are most likely to be escalated.

Context: Resource use:	Stable regions	Instable regions
Indirect use of the environment	Low escalation	High escalation
Direct use of the environment	Low escalation	Medium escalation

*Table 1: Different levels of escalation, dependent on how the environment is used and how stable the context is.*

For the purpose of our study we will only focus on three types of conflicts. The first two types of conflict stem from the different forms of environmental use (indirect/direct). The third type of conflict is based on the level of escalation (low/medium/high), as highly escalated conflicts call for special measures – irrespective of the form of resource use involved. Thus the following three types of conflicts arise:

- 1) Conflicts over the ‘indirect use of natural resources: the resource curse’, where the conflict is related to the commercial use of natural resources, often far from their point of origin. These conflicts are linked to natural resources such as oil and lootable resources (e.g. diamonds), and they call for structural conflict prevention entailing global measures to enhance transparency and sustainability of resource use, as well as operational conflict prevention once a conflict is manifest and escalating.

2) Conflicts over the *'direct use of natural resources, related to local and regional resource scarcity'*. This is where the resource (e.g. water and land as parts of livelihood systems) is used close to where it originates by the people and countries where it is used. Generally, these conflicts are related to destabilization processes and are of a low escalation level. They are often found in subsistence economies and often related to broader environmental insecurity. These conflicts and the parallel environmental insecurity call for structural conflict prevention in line with cooperative sustainable development. Mediation and methods of public participation can help increase local ownership of any development approaches seeking to avoid such conflicts.

3) The role of the *environment in complex conflict 'hot spots'*. Such conflicts are characterized by high escalation levels, typical of conflict prone countries caught in the 'conflict trap'. Here the question is how the environment is considered besides the other central factors. This type of conflict is somewhat at odds with the other two types, as it is based more on escalation and complexity, rather than on a special form of resource use. Yet we argue that this is legitimate, as additional measures are called for, besides those needed to deal with indirect and direct resource use conflicts. Besides structural conflict prevention, these types of conflict call for operational conflict prevention. This entails, for example, UN interventions that account for the environmental factors, in particular in relation to wealth sharing aspects, yet do not depoliticize the conflict at the national level.

There is a certain overlap between these three categories, but they are more adequate for this study than a distinction along the lines of specific resources, or between renewable and non-renewable resources, or between abundant and scarce resources. What is 'abundant' or 'scarce' is relative to the scale of analysis. All resources are scarce, or else there would be no need to fight over them; the question is if they are scarce locally (e.g. water in arid countries) or

globally (oil, that is only abundant in some regions).<sup>27</sup> Besides these three categories, we further distinguish between intra-national and international conflicts, as the measures to deal with these types of conflict differ, for instance in relation to questions of state sovereignty or international frameworks.

### 1.2.1 Indirect use: 'resource curse' conflicts

Indirect resource use conflicts are linked to the global commercial use of resources. The actors involved in mining, production and trade are not the end-users of the resources, they are 'indirect' users. Due to the potentially high revenues involved, these kinds of conflicts are often related to highly escalated conflicts and even wars. According to Paul Collier<sup>28</sup> about 29 percent of the people in the bottom billion (the poorest billion of the world population, with low income and stagnating or declining economic growth) live in countries where natural resource wealth dominates the economy. They are thus threatened by 'resource curse' conflicts.

At the *intra-national* level, research shows that the probability of violent conflict in countries that produce oil, gas and diamonds increased from the 1970s to the late 1990s.<sup>29</sup> Conflict is prone to occur when resources are used as wealth-funding for armed non-state actors or to finance dictatorial 'rentier' states that are not

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27 Mason, S. and Muller, A., 2007: *Transforming Environmental and Natural Resource Use Conflict*, in: Cogoy, M. and Steininger, K. W. (eds.): *The Economics of Global Environmental Change - International Cooperation for Sustainability*. Cheltenham, UK/Northampton, MA, USA: Edward Elgar, <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&iid=29883> (12.1.2008).

28 Collier, P., 2007: *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It*, Oxford: Oxford University Press.

29 Ross, M., 2006: *A Closer Look at Oil, Diamonds, and Civil War*, Annual Review of Political Science, 9: 265-300.

accountable to their tax payers.<sup>30</sup> Valuable natural resources can also be an incentive for coups d'états or lead to a situation of 'Dutch Disease' where resource income prevents a diversification of the economy. Furthermore, resources can be an incentive for insurgencies and separatism for the resource-rich part of the country; or for the government's violent marginalization and oppression of the regional population, in order to access and exploit resources more easily.<sup>31</sup> Examples of primary commodities related to civil wars are oil (Sudan North/South, Nigeria), diamonds (Sierra Leone), timber (Cambodia), copper (Papua New Guinea) and coltan (D.R. Congo).<sup>32</sup> In 'large n' studies, relative resource abundance in a country was found to be one of three main factors (together with economic decline and low per-capita income) that, in combination, increase the likelihood of conflicts.<sup>33</sup>

At the *international* level, it should be noted that wars are on the decrease compared to intra-national armed conflicts, even though a clear

distinction is sometimes difficult (e.g. internationalized sub-national conflicts). Oil has often been mentioned in relation to the two Iraq wars. Donald Rumsfeld (CBS News 14.11.2002) and Tony Blair (London Times 15.1.2003), however, negated oil as a reason for the second Iraq war. Yet besides security considerations, US interest in the stability of the region lies also in the Middle East's rich oil reserves.<sup>34</sup> The stability of the global economic system relies heavily on oil as a source of energy from the Middle East and Russia – indicating the importance of these regions.

Besides oil and lootable resources, there are other resources less often named but also important in the context of conflict. Fish, for example, is related to conflicts that are often a mixture of 'direct' and 'indirect' resource conflicts, as local fishermen are often in conflict with commercial fishermen, who sell fish on the global market. Fishery conflicts are related to a general global trend of over-fishing, as well as a lack of clearly enforceable property rights. The Food and Agriculture Organization (FAO) estimates that three percent of marine stocks are underexploited, 21 percent are moderately exploited, 52 percent are fully exploited (i.e. being fished at maximum biological productivity) and 24 percent are over

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30 Münkler, H., 2003: *Der Neue Golfkrieg*, Hamburg: Rowohlt Verlag.

31 Ross, M., 2006: *A Closer Look at Oil, Diamonds, and Civil War*, Annual Review of Political Science, 9: 265–300.

Collier, P.; Elliott, V.L.; Hegre, H.; Hoeffler, A.; Reynal-Querol, M. and Sambanis, N., 2003: *Breaking the Conflict Trap - Civil War and Development Policy*, Washington DC: World Bank/Oxford University Press, <http://go.worldbank.org/MR2JESLL70> (12.1.2008).

Ross, M., 2004: *What Do We Know about Natural Resources and Civil War?* Journal of Peace Research, 41: 337-356.

32 Ross, M., 2002: *Natural Resources and Civil War, an Overview with Some Policy Options*, Draft Report prepared for the conference 'The Governance of Natural Resources Revenues', Paris: World Bank / Agence Francaise de Développement, December 9-10, 2002.

Montague, D., 2002: *Stolen Goods: Coltan and the Conflict in the Democratic Republic of Congo*, SAIS Review, XXII (1): 103-118.

33 Collier, P.; Elliott, V.L.; Hegre, H.; Hoeffler, A.; Reynal-Querol, M. and Sambanis, N., 2003: *Breaking the Conflict Trap - Civil War and Development Policy*, Washington DC: World Bank/Oxford University Press, <http://go.worldbank.org/MR2JESLL70> (12.1.2008).

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34 Palast, G., 2005: *Secret US plans for Iraq's oil*, BBC News March 17, 2005 <http://news.bbc.co.uk/1/hi/programmes/newsnight/4354269.stm> (12.1.2008).

The US will also become a greater oil importer in the future. According to the Energy Information Agency, the net import of the USA in the year 2004 was 58 percent of demand. The EIA estimates that the dependency of the USA on oil imports in the year 2030 will lie at 62 percent of demand. It has to be noted that these projections are subject to considerable variation, e.g. due to the oil price development; EIA projects 60 percent oil imports for 2025 while this has been projected to be 68 percent in the report from 2005). EIA, 2006: *Annual Energy Outlook*, Washington DC: Energy Information Administration, <http://www.eia.doe.gov/oiaf/aeo/download.html> (12.1.2008).

exploited.<sup>35</sup> Most international fish conflicts were related to the demarcation of the Exclusive Economic Zones (EEZ)<sup>36</sup>. In the 1960s various South American countries unilaterally declared their EEZ zone, causing tension with other international states fishing with a global outreach (and at times also exploring for oil and natural gas). By 1982, the United Nations Convention of the Law of the Sea (UNCLOS) was negotiated, and although it is not ratified by all states (e.g. the US), it is generally respected – one third of the world’s total ocean surface was added to the territory of individual states.<sup>37</sup> Examples of fishery conflicts were the ‘Cod War’ between Great Britain and Ireland, or the ‘Turbot War’ between Canada and Spain. Fishery conflicts may involve violence, e.g. when shots are fired, but they are of a very much lower escalation level compared to the other conflicts mentioned above.

## 1.2.2 Direct use: local and regional ‘resource scarcity’ conflicts<sup>38</sup>

Most ‘direct use’ conflicts are of a low escalation level, typically located in poor and politically unstable countries and closely related to the various dimensions of environmental security including conflict. Instead of viewing conflict as being defined by the number of battle deaths, the ‘environmental security’ approach allows for a focus on human security as it is affected by environmental factors. This also helps to examine low escalated conflicts that do not lead directly to violent death, but that may play a role in relation to structural violence, such as impeded development, disease, famine, forced migration etc. The detrimental impact of environmental insecurity and low level conflicts should not be underestimated. The International Federation of Red Cross and Red Crescent Societies (IFRC)<sup>39</sup> estimates that there are at present millions of ‘environmental refugees’. Food and water security often depend on distribution, access, institutions, and infrastructure, rather than on ‘absolute’ resource availability. Thus, local and regional resource scarcity conflicts are typically related to bad governance and policies, e.g. weak or ‘failing states’ (figure 8). According to Collier<sup>40</sup>, more than three-quarters of the people of the bottom billion live in countries that have at some time been ‘failing states’.

35 FAO, 2005: *Depleted fish stocks require recovery efforts*, <http://www.fao.org/newsroom/en/news/2005/100095/index.html> (12.1.2008).

36 In the EEZ, coastal states have sovereign rights in a 200-nautical mile zone from their coasts with respect to natural resources and certain economic activities, and exercise jurisdiction over marine science research and environmental protection.

37 Gleditsch, N. P., 2007: *Environmental Change, Security, and Conflict*, in: Chester, C.; Hampson, F. O. and Aall, P. (eds.): *Leashing the Dogs of War: Conflict Management in a Divided World*, Washington, DC: United States Institute of Peace Press, in press, <http://hei.unige.ch/sections/sp/courses/0607/gleditsch/readings/Gleditsch-ENVIRONMENTAL-CHANGE-SECURITY-AND-CONFLICT.pdf> (12.1.2008).

38 This section is in parts based on Mason, S. and Muller, A., 2007: *Transforming Environmental and Natural Resource Use Conflict*, in: Cogoy, M. and Steininger, K. W. (eds.): *The Economics of Global Environmental Change - International Cooperation for Sustainability*. Cheltenham, UK/Northampton, MA, USA: Edward Elgar, <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=29883> (12.1.2008).

39 The research on environmental migration is controversial, for an overview see Gleditsch, N.P.; Nordas, R. and Salehyan, I., 2007: *Climate Change and Conflict: The Migration Link – Coping with Crisis*, International Peace Academy [http://www.ipacademy.org/asset/file/169/CWC\\_Working\\_Paper\\_Climate\\_Change.pdf](http://www.ipacademy.org/asset/file/169/CWC_Working_Paper_Climate_Change.pdf) (12.1.2008).

40 Collier, P., 2007: *The Bottom billion: Why the Poorest Countries are Failing and What Can Be Done About It*, Oxford: Oxford University Press.



### *Intra-national direct use conflicts*

Intra-national direct use conflicts can be differentiated into three groups: conflict within one economic sector, between different economic sectors and those related to large development projects.

*Conflicts within one economic sector* often involve insecurity and violence when they are found in countries where subsistence agriculture dominates and poverty is prevalent.<sup>41</sup> Typical examples are large-scale mechanized farms encroaching on the land of pastoralists and traditional farmers in many countries in sub-Saharan Africa. Generally, the state will support the large-scale farmers by granting legally binding property rights and state enforcement, ignoring the already existing, often unwritten traditional property rights both to land and water. The kind of violence that ensues is generally of a small scale, e.g. cattle are driven into the fields of the new farm, or some people are killed.<sup>42</sup> Examples are inter- and intra-tribal conflicts in the Sahel zone due to tensions between governments, modern agricultural schemes and marginalized parts of the population. The clashes in the Weiyto valley in Ethiopia in 1997, causing the death of 17 people, illustrates this type of conflict.<sup>43</sup> In combination with other issues and group cleavages (e.g. ethnic), however, this can lead to social unrest that may escalate. Besides such conflicts, famines are widespread in subsistence agriculture societies, at times aggravated by climate fluctuations and short-sighted state

policies. Clarity about water and land property rights (often a combination of state, private and communal rights) is crucial in order to protect traditional livelihood systems and create incentives for investment and development. Drinking water conflicts may occur when public drinking water facilities are privatized without sufficient participation of the involved stakeholders.<sup>44</sup> Combined with other factors, this may lead to riots, as in the case of Cochabamba, Bolivia.<sup>45</sup> Conflicts in the industry sector are often found in relation to large-scale projects (see below).

*Conflicts between different economic sectors* are well illustrated in the case of water. Worldwide, about 70 percent of all withdrawn freshwater is used for irrigation purposes.<sup>46</sup> As agriculture has a low economic return per invested water unit in comparison to other uses, in many countries water is transferred from the agricultural sector to other sectors (e.g. industry, tourism or for drinking water). This reallocation can cause conflicts between different users.<sup>47</sup>

*Conflicts over large-scale projects* emerge mostly between the local population harmed by the project and the state that hopes to benefit from it. Examples are large dams, river diversions, swamp drainages, nuclear power plant

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41 Baechler, G. and Spillman, K. R. (eds.) 1996a: *Environmental Degradation as a Cause of War, Regional and Country Studies of Research Fellows*, Vol. 2 (of 3 Volumes), Chur and Zürich, Switzerland: Rüegger.

42 Baechler, G.; Spillmann, K. R. and Suliman, M. (eds.) 2002: *Transformation of Resource Conflicts: Approach and Instruments*, Bern, Switzerland: Peter Lang. Summary under: <http://www.ikaoc.unibe.ch/forschung/nordsued/ns.band3.html> (12.1.2008).

43 Jacob Arsano and Baechler, G., 2002: *The Transformation of Resource Conflict*, in: Wenger, A. and Baechler, G. (eds.): *Conflict and Cooperation - The Individual between Ideal and Reality*, Zürich: NZZ Verlag.

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44 Perry, C.J.; Rock, M. and Seckler, D., 1997: *Water as an Economic Good: A Solution, or a Problem?*, Research Report Series, International Water Management Institute (IWMI), [http://www.iwmi.cgiar.org/Publications/IWMI\\_Research\\_Reports/PDF/PUB014/REPORT14.PDF](http://www.iwmi.cgiar.org/Publications/IWMI_Research_Reports/PDF/PUB014/REPORT14.PDF) (12.1.2008).

45 Mason, S. and Muller, A., 2007: *Analyzing economic market interactions as conflicts: New concepts to assess market-based policy instruments*, Ecological Economics, Elsevier, vol. 61(1): 81-90.

46 UN, 1997: *United Nations Comprehensive Assessment of the Freshwater Resources of the World*, Report of the Secretary-General, United Nations Commission on Sustainable Development.

47 Perry, C.J., Rock, M. and Seckler, D., 1997: *Water as an Economic Good: A Solution, or a Problem?* Colombo, Sri Lanka, International Irrigation Management Institute (IWMI), [http://www.iwmi.cgiar.org/Publications/IWMI\\_Research\\_Reports/PDF/PUB014/REPORT14.PDF](http://www.iwmi.cgiar.org/Publications/IWMI_Research_Reports/PDF/PUB014/REPORT14.PDF) (12.1.2008).

constructions or industrial complexes. Public demonstrations against the planned chemical complex in Xiamen, China<sup>48</sup> illustrate such conflicts. The World Commission on Dams estimated that 40-80 million people were relocated due to the construction of dams during the past 50 years.<sup>49</sup>

To recapitulate, intra-national conflicts over access to resources are mainly due to the marginalization of parts of the population. In economic terms, such conflicts can partly be attributed to the failure of internalizing external costs of the respective activity. Other conflicts, however, are a symptom of structural change that can be economically efficient but nevertheless potentially detrimental to particular persons or groups. This points to necessary measures to transform such conflicts: the people directly affected need to be involved in the decision-making processes, the access to resources essential for livelihoods need to be guaranteed or true alternatives need to be offered (e.g. in case of relocation due to large dam projects), external costs need to be internalized and measures that mitigate the negative effects of structural change have to be undertaken.

#### *International direct use conflicts*

We mainly discuss three groups here: international freshwater conflicts, territorial conflicts and conflicts related to the use of ecosystem services.

*International freshwater conflicts:* Water scarcity, combined with shared water resources such as an international river, may lead to conflict between upstream and downstream users. Approximately 45 percent of the global land surface is covered by an international river basin. There are about

260 international rivers<sup>50</sup>; important rivers related to water conflict and cooperation include the Nile, Jordan, Euphrates/Tigris, Indus and Mekong. There is some evidence that countries that share rivers are more prone to the risk of military disputes, although the relation between water scarcity and armed interstate conflict is not very strong.<sup>51</sup> Rather than war, water scarcity seems more likely to lead to sub-national conflicts and has generally destabilizing effects on a region or country.<sup>52</sup> On the international level, water scarcity is generally more likely related with international cooperation rather than with international violent conflict.<sup>53</sup> A key reason why international river conflicts do not lead to war is because a water scarce country can import food.<sup>54</sup> 'Virtual water' is water embedded in food, which can be more easily transported than water (for more on global virtual water trade, see the section on environmental insecurity below).<sup>55</sup> Wolf has also pointed out

48 China.org.cn, 2006: People vs. chemical plant <http://www.china.org.cn/english/environment/239503.htm> (12.1.2008).

49 WCD, 2000: *Dams and Development - A New Framework for Decision-Making*, The Report of the World Commission on Dams, <http://www.dams.org/report/> (12.1.2008).

50 Tøset Wollebæk, H. P.; Gleditsch, N. P. and Hegre, H., 2000: *Shared Rivers and Interstate Conflict*, *Political Geography* 19(8): 971–996.

51 Tøset Wollebæk, H. P.; Gleditsch, N. P. and Hegre, H., 2000: *Shared Rivers and Interstate Conflict*, *Political Geography* 19(8): 971–996.

52 Wolf, A. T., 1997: *International Water Conflict Resolution: Lessons From Comparative Analysis*, *International Journal of Water Resource Development*, 13(3): 333-365.

Wolf, A. T., 1998: *Conflict and cooperation along international waterways*, *Water Policy*, 1(2): 241-265.

53 "In fact, the weight of historic evidence tends to favor water as a catalyst for cooperation: organized political bodies have signed 3,600 water-related treaties since AD 805, versus only seven minor international water-related skirmishes (each of which included other non-water issues)." Hamner, J. H. and Wolf, A. T., 1997: *Patterns in International Water Resource Treaties: the Transboundary Freshwater Dispute Database*, *Colorado Journal of International Environmental Law and Policy*, Yearbook 1998, <http://www.transboundarywaters.orst.edu/publication/s/patterns/> (12.1.2008).

54 Allan, J. A., 1997: *Virtual Water: A Long-term Solution for Water Short Middle Eastern Economies?*, Paper presented at the 1997 British Association Festival of Science, University of Leeds, UK, September 9, 1997.

55 "A kg of bread, for example, requires about 1000 liters of water to produce, and a kg of beef requires 15,000 liters." Yang, H. and Zehnder, A., 2002: *Water Scarcity and Food Import - A Case Study for*

that some 145 treaties over transboundary freshwater cooperation were reached in the last century, showing that water can lead to cooperation more often than to violent conflict.<sup>56</sup>

*International territorial conflicts:* As mentioned above, about 60 percent of all armed conflicts are related to territorial issues. This is, in part, due the natural resources of a territory which are at stake (e.g. oil in secessionist wars); but also because land can become a proxy for power, identity, prosperity or security (e.g. Sinai, Golan heights). Territorial conflicts are often perceived as zero-sum situations. Efforts at preventing conflict need to delink the issue at stake (e.g. security, wealth, identity) from the disputed territory (e.g. following the 'peace parks' model).<sup>57</sup>

*Conflicts related to ecosystem services:* This type of 'direct use' international conflict refers to a range of low-level conflicts over the protection of environmental systems, e.g. over air pollution in Europe in the 1960s<sup>58</sup> or concerning access and rights to patents over genetic resources, conflicts between people for and against the protection of biodiversity or other environmental conservation measures.<sup>59</sup> The most important and significant potential for conflict is related to the climate

system. Climate change has an impact in various ways, such as through rising sea levels (South Pacific Islands), changes in vegetation zones (e.g. Sahel zone), or greater climatic fluctuations (drought and floods). Figure 7 indicates where the greatest increase in climate change is expected. In turn, these changes may aggravate and escalate existing tense situations and may even cause new conflicts. This potential effect of climate change will be discussed below, in section 1.3.3. Since developing countries are generally more vulnerable to the negative impacts of climate change, but the developed countries are still the main cause of greenhouse gas emissions, there is a latent conflict between these two groups regarding the use of the atmosphere's greenhouse gas absorption capacity. Furthermore, climate change can be viewed as a 'low-level' conflict between those countries that seek effective measures to reduce climate gas emissions (e.g. the EU), and those countries that are trying to block these measures (e.g. the US and Australia).

### 1.2.3 Environmental factors in conflict 'hot spots': Central Asia, Darfur

While the two sections above examined conflicts created over the use of resources and the environment, the following section focuses on conflict prone regions and already escalated conflicts – for an overview see figure 2. 73 percent of the people of the bottom billion have recently experienced a civil war or are still experiencing one; and once a country has experienced a civil war, the risk of another conflict nearly doubles.<sup>60</sup> The risk that one of the countries that are home to the bottom billion will fall into civil war in any five-year period is about one in six.

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*Southern Mediterranean Countries*, World Development, 30(8): 1413-1430.

56 Hamner, J. H. and Wolf, A. T., 1997: *Patterns in International Water Resource Treaties: the Transboundary Freshwater Dispute Database*, Colorado Journal of International Environmental Law and Policy, Yearbook 1998, <http://www.transboundarywaters.orst.edu/publication/patterns/> (12.1.2008).

57 Anatole, A.: *Territorial Conflicts*, (Draft Version) edited by William Zartman, <http://wwics.si.edu/subsites/ccpdc/pubs/zart/ch3.htm> (12.1.2008).

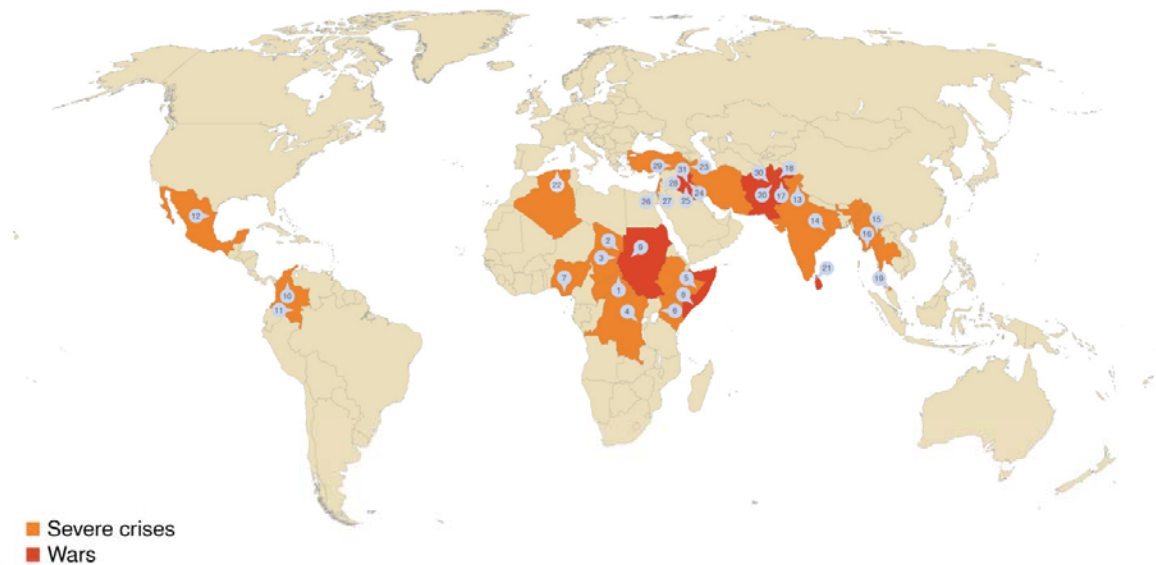
58 Trollalden, J. M., 1992: *International Environmental Conflict Resolution: The Role of the United Nations*, Washington DC: World Foundation for International Development.

59 Trollalden, J. M., 1992: *International Environmental Conflict Resolution: The Role of the United Nations*, Washington DC: World Foundation for International Development.

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60 Collier, P., 2007: *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It*, Oxford: Oxford University Press.

## Worldmap: Violent conflicts of high intensity in 2007



The countries affected by conflicts are marked regarding the highest intensity.

### Legend

No.	Name and conflict items
<b>Sub-Saharan Africa - Severe crises</b>	
1	Central African Republic (UFDR, APRD) - national power
2	Chad (ethnic groups) - regional predominance
3	Chad (various rebel groups) - national power
4	DR Congo (ex-RCD-G, Interahamwe, FDLR) - national power
5	Ethiopia (ONLF/Ogaden) - secession
6	Kenya (ethnic groups) - resources
7	Nigeria (Niger Delta - Ijaw) - regional predominance, resources
<b>Sub-Saharan Africa - Wars</b>	
8	Somalia (UIC) - system/ideology, national power
9	Sudan (Darfur) - regional predominance, resources
<b>The Americas - Severe crises</b>	
10	Colombia (FARC - ELN) - system/ideology, regional predominance, resources
11	Colombia (FARC) - system/ideology, regional predominance, resources
12	Mexico (drug cartels) - regional predominance
<b>Asia and Oceania - Severe crises</b>	
13	India (Kashmir) - secession
14	India (Naxalites) - system/ideology
15	Myanmar (KNU, KNLA, KNPP, KNA - UWSA, DKBA, government / Karen State, Kayah State) - secession
16	Myanmar (opposition) - system/ideology, national power
17	Pakistan (Islamists) - system/ideology
18	Pakistan (Sunnites - Shiites) - system/ideology, regional predominance
19	Thailand (Muslim separatists/southern border provinces) - secession
<b>Asia and Oceania - Wars</b>	
20	Pakistan (North and South Waziristan) - regional predominance
21	Sri Lanka (LTTE) - secession
<b>The Middle East and Maghreb - Severe crises</b>	
22	Algeria (Islamist groups) - system/ideology, national power
23	Iran (PJAK/Kurdish areas) - autonomy
24	Iraq (al-Sadr group) - system/ideology, national power
25	Iraq (al-Zarqawi group) - system/ideology, national power
26	Israel (Fatah - Hamas) - system/ideology, regional predominance
27	Israel (PNA, al-Fatah, Hamas/Palestine) - secession, system/ideology, resources
28	Lebanon (Hezbollah, Fatah al-Islam) - system/ideology, national power
29	Turkey (PKK/KONGRA-GEL/Kurdish areas) - autonomy
<b>The Middle East and Maghreb - Wars</b>	
30	Afghanistan (Taliban) - system/ideology, national power
31	Iraq (insurgents) - system/ideology, national power

Figure 2: Violent conflicts of high intensity in 2007. Source and copyright: Heidelberg Institute for International Conflict Research, Department of Political Science, University of Heidelberg, 2007, "Conflict Barometer 2007 – Crises – Wars – Coups d'Etat – Negotiations – Mediations – Peace Settlements". 16 Annual Conflict Analysis.

The role that the environment plays in the conflict or in its resolution will be examined through two cases: a) Central Asia, and b) Darfur. Including more cases goes beyond the scope of this report, but these serve as an illustration of the complexity of today's escalated conflicts that can not be termed as 'environmental conflicts' even if the environment does play a role in them.

### *Central Asia*

Central Asia (Tajikistan, Turkmenistan, Kyrgyzstan, Kazakhstan and Uzbekistan, see figure 3) is a region that highlights the diverse nature of environment-related conflicts and insecurity, with tensions related to the 'resource curse' (e.g. gas) and local and regional resource mismanagement (e.g. local and international water use of the Syr Darya and Amu Darya). Historical factors account for present-day conflicts in Central Asia, such as the Tsarist Russian conquest of Central Asia in the 19<sup>th</sup> century in order to produce cotton. Yet, today the region is also strongly affected by the political and economic legacy of the Soviet period, exemplified by inefficient water management systems. Present-day conflicts related to the environment should therefore not be considered without taking into account these specific conditions. First the countries are briefly described, before examining the environmental dimensions more in-depth.

*Conflict and instability:* The civil war in *Tajikistan* between 1992 and 1997 cost the lives of some 50,000 to 100,000 people. Yet now *Tajikistan* seems one of the more politically stable countries of Central Asia, although it is still very poor, with high corruption levels. Due to a lack of opportunities to make a living at home, many *Tajikistanis* nowadays choose to work as labour migrants abroad. Within *Tajikistan*, 67 percent of the labor force is employed in the agricultural sector, cotton being the main cash crop.<sup>61</sup>

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61 CIA, 2007: *Tajikistan*, <https://www.cia.gov/library/publications/the-world-factbook/geos/tj.html> (12.1.2008).

*Turkmenistan* is characterized by a very repressive regime, weakened civil society, yet large reservoirs of gas providing revenues to the state apparatus. *Kyrgyzstan* is faced by a low intensity domestic competition over political power and the countries' limited economic resources, and weak governmental institutions. *Kazakhstan* enjoys some economic income from oil/gas reserves, but is considered to be potentially volatile politically and characterized by an authoritarian regime. *Uzbekistan* is estimated to have the highest risk of instability in Central Asia; it is second to *Turkmenistan* for political repression. The regime is often violent in its measures to quell unrest: in May 2005, Uzbek security forces suppressed an uprising in Andijan, with over a hundred civilians killed.<sup>62</sup> The declining economic situation has left millions in poverty, and together with the repressive political situation, constitutes the risk of further outbreaks of violence.<sup>63</sup>

*Indirect resource use, 'resource curse':* Concerning gas, the link to domestic instability is very apparent, as *Kazakhstan*, *Turkmenistan* and *Uzbekistan* all have significant gas reserves, with the problems of 'rentier' states and the 'Dutch disease', where resource income prevents a diversification of the economy. Corruption and mega-projects (such as the Astana capital in *Kazakhstan*) consume resource revenues that could have been invested in public services.<sup>64</sup>

Besides the role these natural resources play in destabilizing these countries domestically, energy resources also influence conflict and cooperation at the international level. The export of gas is heavily controlled by Russia due to the North-South structure of the pipelines – a remnant

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62 However, the exact number of injuries and deaths of civilians and security forces have been contested, ranging from over a hundred to several thousand.

63 ICG, 2006: *Central Asia: What Role for the European Union?*, Asia Report N°113, April 10, 2006.

64 ICG, 2007: *Central Asia's Energy Risks*, Asia Report N°133, May 24, 2007 <http://www.crisisgroup.org/home/index.cfm?id=4866&l=1> (12.1.2008).

from the Soviet era. Efforts at avoiding the pipelines through Russia to increase contacts with the EU were not welcomed by Russia.<sup>65</sup> Energy hungry China is also highly interested in securing energy resources from Central Asia.



Figure 3: Map of Central Asia

*Direct use, local and regional resource scarcity:* At the international level, there is competition for water between the downstream countries Kazakhstan, Turkmenistan and Uzbekistan, all of which consume water for cotton production, and the upstream countries, Kyrgyzstan and Tajikistan, who want to use the water for hydro-electric power production and farming. At the moment there is an annual cycle of disputes between the upstream and downstream countries, as a coherent and long-term water management strategy is missing. Tensions arise over unmet agreements that the upstream countries provide water to Uzbekistan and Kazakhstan in return for energy resources (gas, coal or electric power).<sup>66</sup> Large-scale environmental degradation is another feature of environmental insecurity in Central Asia. The Aral Sea has lost more than 2/3 of its volume since 1960 as a result of the cotton production, having detrimental health impacts on the resident population, including diseases due to pesticides and fertilizers in contaminated

65 ICG, 2006: *Central Asia: What Role for the European Union?*, Asia Report N°113, April 10, 2006, <http://www.crisisgroup.org/home/index.cfm?id=4065&l=1> (12.1.2008).

66 ICG: *Central Asia: Water and Conflict*, report No. 34.

drinking water.<sup>67</sup> This did not lead to violent conflicts, however. Indeed, the five countries of the Aral Basin seem to be cooperating to try and save what they can, with considerable international support and mixed signs of success.<sup>68</sup>

At the local level, the Ferghana Valley – crossing international borders – was often portrayed as being a likely spot for environment-induced ethnic tensions. However, local alliances among communities are formed more on a territorial basis, as irrigation farmers are territorially bound, rather than divided along ethnic lines. While there is clearly a problem of water mismanagement, the Ferghana Valley shows that any assumptions of a direct

link between water scarcity and violent conflict are erroneous.<sup>69</sup>

Concerning water resources, the risk is therefore not necessarily violent conflict over water, but rather human insecurity leading to disenfranchised segments of the population, which are often forced to migrate and end up unemployed. Together with political repression, instability and economic decline (related to the ‘resource curse’ of gas reserves) this may enhance opposition towards the central state – which may eventually turn violent. One cannot isolate the environmental factor in such complex destabilization processes, yet the necessity to provide sustainable livelihood systems which are

67 MSF, 2003: *The Aral Sea disappears while tuberculosis climbs*, [http://www.msf.org/msfinternational/invoke.cfm?objid=364F0F06-88B8-4441-BF545983259E50B6&component=toolkit.article&method=full\\_html&CFID=1287011&CFTOKEN=36315382](http://www.msf.org/msfinternational/invoke.cfm?objid=364F0F06-88B8-4441-BF545983259E50B6&component=toolkit.article&method=full_html&CFID=1287011&CFTOKEN=36315382) (12.1.2008).

68 UNESCO Water Portal Weekly Update No. 175: The Aral Sea <http://www.unesco.org/water/news/newsletter/175.shtml#pub> (12.1.2008).

69 Bichsel, C., 2006: *Dangerous Divisions: Irrigation Disputes and Conflict Transformation in the Ferghana Valley*. Unpublished PhD thesis, Berne: University of Berne.

related to a sustainable ecosystem is an important factor, especially in countries whose economies are still strongly dependent on agriculture.

### *Darfur*

Sudan has been plagued by conflicts since its independence in 1956. Oil, water and land have played a role in most of these conflicts.<sup>70</sup> Darfur is featured here as it is an ongoing conflict and has been quoted as an example where climate change is a key factor in aggravating the conflict. First, the general situation of conflict and instability in Sudan is summarized. Second, the UN Secretary-General's emphasis of the role of climate change in Darfur is examined. Third, we explore the role of environmental factors in this conflict 'hot spot'. Fourth, ongoing and potential conflict prevention options are outlined.

*Conflict and instability:* Sudan is the largest country in Africa, and the tenth largest country by area in the world, with diverse ecological zones (wetlands, savanna, desert) and more than 100 different ethnic groups and languages (figure 4). Darfur in western Sudan is a region about the size of France, bordering Libya, Chad and the Central African Republic. Since 2003 more than 200,000<sup>71</sup> people have lost their lives in Darfur, more than two million have been displaced, and more than four million people are dependent on humanitarian assistance. The issue of power and wealth sharing between the center

and the historically marginalized periphery are key factors in the instability of Sudan in general, and Darfur in particular. The conflict in Darfur is not new, there have been skirmishes going back to pre-independence, yet it only escalated in the 1980s and then most dramatically in 2003.

Sudan is governed by the National Congress Party NCP (formerly the National Islamic Front), with some power sharing with the SPLM/A (Sudan People's Liberation Movement/Army) following the Comprehensive Peace Agreement (CPA) signed between the North and South in January 2005. The CPA ended the civil war between North and South – a conflict that cost the lives of some two million people. The escalation in Darfur coincided with the CPA negotiations, yet following the interests of Khartoum, these talks explicitly did not address the Darfur conflict. The opposition parties face repression and are divided amongst themselves, weakening serious alternatives to the NCP. Libya, Eritrea, Egypt and Chad are regional actors that have their stakes in Sudan and the Darfur conflict, backing various sides and thereby complicating matters further.<sup>72</sup> The NCP collaboration with the US on Islamic terrorism is another key card in the hands of Khartoum to avoid greater US pressure.<sup>73</sup> Due to China's involvement in the oil production in Sudan, China has long been keen to minimize too much international pressure on Sudan over Darfur.<sup>74</sup>

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70 Mohamed, S., 2004: *Ecology, Politics and Violent Conflict, Respect*, Sudanese Journal for Human Rights' Culture and Issues of Cultural Diversity, Issue No. 1, November 2005.

[http://postconflict.unep.ch/sudanreport/sudan\\_website/doccatcher/data/documents/Ecology.%20Politics%20and%20Violent%20Conflict.pdf](http://postconflict.unep.ch/sudanreport/sudan_website/doccatcher/data/documents/Ecology.%20Politics%20and%20Violent%20Conflict.pdf) (12.1.2008).

Suliman, M., 1992: *Civil War in Sudan: The Impact of Environmental Degradation, Environment and Conflicts Project* (ENCOP), Center for Security Studies, ETH Zurich, and swisspeace,

<http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&q51=mohamed+suliman&cid=238> (12.1.2008).

71 Dealey, S., 2007: *An Atrocity that needs no exaggeration*, in: The New York Times, August 12, 2007, Washington.

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72 Marchal, R., 2007: *The Unseen Regional Implications of the Crisis in Darfur*, in: De Waal, A. (eds.) 2007: *War in Darfur and the Search for Peace*, Cambridge, MA: Harvard University Press: 173-198.

73 Prendergast, J., 2006: *So How Come We Haven't Stopped It?*, in: The Washington Post, November 19, 2006,

<http://www.crisisgroup.org/homel/index.cfm?id=4516&l=1> (12.1.2008).

74 Evans, G. and Steinberg, D., 2007: *China and Darfur: "Signs of Transition"*, in: Guardian Unlimited, June 11, 2007,

<http://www.crisisgroup.org/home/index.cfm?id=4891&l=1> (12.1.2008).



Figure 4: Map of Sudan with Darfur highlighted.

*The UN Secretary-General's emphasis on environmental factors:* While the ecological dimension of the Darfur conflict is not new<sup>75</sup>, it was given prominence by UN Secretary-General Ban Ki-Moon, who argued: “Almost invariably, we discuss Darfur in convenient military and political shorthand – an ethnic conflict pitting Arab militias against black rebels and farmers. Look to its roots, though, and you discover a more complex dynamic. Amid the diverse social and political causes, the Darfur conflict began as an ecological crisis, arising at least in part from climate change”.<sup>76</sup> However, Alex de Waal notes

75 Suliman, M., 2005: *Ecology, Politics and Violent Conflict, Respect*, in: Sudanese Journal for Human Rights' Culture and Issues of Cultural Diversity, Issue No. November 1, 2005, [http://postconflict.unep.ch/sudanreport/sudan\\_website/doccatcher/data/documents/Ecology.%20Politics%20and%20Violent%20Conflict.pdf](http://postconflict.unep.ch/sudanreport/sudan_website/doccatcher/data/documents/Ecology.%20Politics%20and%20Violent%20Conflict.pdf) (12.1.2008).

76 Ki Moon, B., 2007: *A Climate Culprit In Darfur*, in: The Washington Post, June 16, 2007, Page A15 <http://www.washingtonpost.com/wp-dyn/content/article/2007/06/15/AR2007061501857.html> (12.1.2008).

that the line of argument used by the Secretary-General tends to be overly simplistic: Climate change causes livelihoods to change, which may cause disputes. Such disputes, however, can generally be managed by social institutions in a non-violent manner. Thus war is caused by mismanagement and militarization of such processes, rather than by climate change per se.<sup>77</sup> Julie Flint also points out that: “Attempts to paint the Darfur conflict as simply resource-based ‘whitewashes’ the Sudan government.”<sup>78</sup>

Why the emphasis on environmental factors by the UN Secretary-General? Climate change is on the international agenda, and pointing to impacts of climate change can foster the very much needed political motivation to

address the problem at the global level. Ban Ki-Moon may also have tried to make it easier for Khartoum to accept UN peacekeeping troops by highlighting the climate change dimension, rather than the political deficit of the NCP. His statement linking Darfur to climate change on 16 June 2007 came right before the UN Security Council – under Chinese chairmanship – agreed to Resolution 1769 on 31 July 2007 enabling a hybrid African Union (AU)/UN mission of up to 20,000 personnel for Darfur.

*Importance of environmental factors:* How important are environmental factors in the Darfur conflict? There is evidence that rainfall is

77 De Waal, A., 2007: *Is Climate Change the Culprit for Darfur?*, in: *Making Sense of Darfur*, Social Science Research (SSRC) Blogs, <http://www.ssrc.org/blog/2007/06/25/is-climate-change-the-culprit-for-darfur/> (12.1.2008).

78 UN Office for the Coordination of Humanitarian Affairs, 2007: *SUDAN: Climate change - only one cause among many for Darfur conflict*, IRIN, humanitarian news and analysis, June 28, 2007, <http://www.irinnews.org/Report.aspx?ReportId=72985> (12.1.2008).



decreasing in the Sahel belt and that this trend is likely to continue, although there are periodical fluctuations. While there have been a few better rainfalls in recent years, rainfall on average has decreased by about 20-30 percent over the last 30 years.<sup>79</sup> According to UNEP, “The scale of historical climate change, as recorded in Northern Darfur, is almost unprecedented: the reduction in rainfall has turned millions of hectares of already marginal semi-desert grazing land into desert. The impact of climate change is considered to be directly related to the conflict in the region, as desertification has added significantly to the stress on the livelihoods of pastoralist societies, forcing them to move south to find pasture”.<sup>80</sup> Such changes were also highlighted by the droughts of 1984-85. It is also very likely that these trends aggravated already existing and age old conflicts between different land use systems (e.g. pastoralists and settled farmers) to the point where traditional conflict management mechanisms (e.g. Joudiyya, traditional elders mediation) may no longer be able to deal with these conflicts by keeping them at a low level of escalation. This becomes increasingly difficult when small arms became more widely available.<sup>81</sup>

Besides the ecological trend of decreasing rainfall, however, there are important political and economic factors that must be considered in relation to natural resource management. The 1970 Unregistered Lands Act entitled the government of Sudan to use force in acquiring land, alienating agro-pastoralists and their traditional property rights. This made room for large-scale mechanized farms that encroached on

traditional land use systems. The 1990 investment act gave further rights to the state: “The displacement caused by mechanized farming remains a major source of grievance and conflict, reinforcing feelings of neglect, marginalization and social repression, as well as sealing off nomadic routes, water points and pastures, fostering a culture of land-grabbing and creating large landless groups who are forced to work as precarious wage laborers or to migrate to urban centers.”<sup>82</sup>

Consequently, decreasing rainfall with an expanding Sahel belt, combined with land acts that undermined traditional property rights, and the expansion of large-scale mechanized farming did cause major tensions in Darfur, more so than in other regions in Sudan, such as Blue Nile state and Nuba mountains. Thus, environmental changes, the state’s flawed management of this fragile ecosystem, and the suppression and incapacity of the traditional land and conflict management systems to deal with the new situation were key environmental factors that contributed to conflict and instability in Sudan.

*Conflict prevention:* There have been many attempts to resolve the Darfur conflict, yet generally they have failed because the wider political context was not favorable and the operational conflict prevention measures were faulty, often seeking ‘quick-fix’ solutions. The AU-mediated Darfur Peace Agreement of May 2006 in Abuja, Nigeria<sup>83</sup> and the AU/UN mediation attempts launched in November 2007

79 United Nations Environment Program (UNEP) “Sudan – Post-Conflict Environmental Assessment”, <http://www.unep.org/sudan/> (12.1.2008).

80 UN Office for the Coordination of Humanitarian Affairs, 2007: *SUDAN: Climate change - only one cause among many for Darfur conflict*, IRIN, humanitarian news and analysis, June 28, 2007, <http://www.irinnews.org/Report.aspx?ReportId=72985> (12.1.2008).

81 Ahmed el Tayeb, M., (forthcoming): *National and Indigenous Management of Environmental Conflicts in the Savannah Belt of Sudan*, Dissertation, University of Khartoum.

82 Ayoub, M., 2006: *Land and conflict in Sudan*, ACCORD, Conciliation Resources, <http://www.c-r.org/our-work/accord/sudan/Land-conflict.php> (12.1.2008).

83 Hottinger, J. T., 2006: *The Darfur Peace Agreement: expectations unfulfilled*, ACCORD, Conciliation Resources <http://www.c-r.org/our-work/accord/sudan/dpa-unfulfilled.php> (12.1.2008).

Nathan, N., 2006: *No Ownership, No Peace: the Darfur Peace Agreement*, Crisis States Research Centre, <http://www.crisisstates.com/download/wp/wpSeries2/WP5.2.pdf> (12.1.2008).

in Sirte, Libya<sup>84</sup> indicate how problematic such 'band-aid' and overly standardized approaches are. The present lead mediators (AU and UN) have great difficulty in agreeing on a clear strategy and guidance in the process. The Sirte talks were insufficiently prepared. The use of artificial deadlines in negotiations (as in this case) is generally detrimental to a peace process. While external actors (e.g. USA) may put pressure on the mediators to use such deadlines, mediators need to shield a process from such pressures if it is to lead to sustainable agreements. Key rebel groups did not attend the talks in Libya, or – as in Abuja – they were put under enormous pressure to sign a document they did not shape – leading to a walk-out of the most important rebel leaders. Effective operational conflict prevention would therefore require greater harmonization of the rebel groups, and greater coherence on the side of the actors: regional (Eritrea, Egypt, Libya, and Chad) and global (US and China). While a more realistic and professional use of mediation at the level of the AU and UN was and is very necessary, most of the context factors of the regional and global actors are outside the control of the mediators.<sup>85</sup>

Thus environmental factors do need to be considered, yet not in a manner that depoliticizes a conflict at the country level – ignoring local and national political actors. In Darfur, security through the AU/UN hybrid mission is certainly a key step to conflict resolution, and with time one can hope that the AU/UN will learn how to use mediation more effectively. In addition, structural and more long-term conflict prevention would also call for power and wealth sharing at all levels of society, establishing and enforcing property rights that consider traditional land use rights and

livelihoods<sup>86</sup> as well as developing alternative income sources for those who have made war a way of life, or who have been pushed from their land.

## Summary

Most highly escalated conflicts and conflict prone regions are related to the environment and natural resources in numerous ways. In most cases, however, it is too simplistic to talk about 'environmental conflicts' or 'resource conflicts'. Political, economic and socio-cultural factors affect how political actors deal with changing environmental situations. This is often more important in determining whether a conflict escalates or not, rather than the changing state of the environment per se. These cases show that it would be as short-sighted to ignore environmental aspects in conflict prevention, as it would be to focus on them by ignoring other factors. The cases also show that the focus of conflict prevention must be on how the environment is used and managed, rather than viewing environmental change as an inevitable precursor of conflicts. The focus on use and management calls for political engagement with those actors directly affected, so that conflict preventive measures are adapted to the specific context. In short, conflict prevention must consider environmental factors, but such an inclusion must not lead to the depoliticization of conflicts.

### 1.3 Environmental trends and socio-political factors potentially affecting conflicts

After having presented an overview and some illustrations of the current situation regarding environmental and resource conflicts and

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84 For latest news on the process, see the Sudan Tribune: <http://www.sudantribune.com/spip.php?mot76> (12.1.2008).

85 De Waal, A., 2007: *Sudan: International Dimensions to the State and its Crisis*, LSE Crisis States Research Centre, London, Occasional Paper, April 3, 2007: 15-22.

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86 Young, H.; Monim Osman, A.; Aklilu, Y.; Dale, R. and Badri, B., 2005: *Darfur – Livelihoods under Siege*, Feinstein International Famine Center, Tufts University, <http://www.unsudanig.org/docs/Darfur%202005%20Livelihoods%20Under%20Siege%20Tufts%20and%20Ahfad%20Universities.pdf> (12.1.2008).

conflict hot-spots, the aim of this section is to first examine *environmental trends* in resource availability and ecosystem use. We focus on those trends that are generally predicted to increase pressure on societies and that could increase the likelihood or aggravate the kinds of conflicts we described above. We examine these trends and conditions according to several sub-sections: we look at food resources, energy resources, and the climate system. We also shortly address other relevant resources in this context.

Second, we also discuss various *socio-political factors* and conditions and their potentially mitigating or intensifying nature. These factors have to be addressed together with the environmental factors for conflict prevention to be effective. We address conditions such as the strength of political institutions and other political, economic and cultural factors, but also the rate of population growth and trends in income inequality. The link between these trends, conditions and conflicts is speculative, however, and subject to differing viewpoints in the literature. But as long as one is aware of the speculative nature, it is important to consider conflicts as one possible consequence of such trends. Furthermore, awareness on which conditions might act in a manner to mitigate or intensify potential conflicts is important as a basis for the responses to be undertaken (part 3). The cases presented above in section 1.2.3. serve as an illustration of the interplay of such trends and conditions in the context of conflicts.

### 1.3.1 Food and water security

Between 2001 and 2003 some 854 million people were undernourished worldwide. A successful reduction in the number of undernourished people was achieved in the 1970s and 1980s, but this was not matched in the first years of the new millennium.<sup>87</sup> Food security cannot be separated from agriculture,

which in its turn depends on sufficient water and fertile soil. For this reason, we deal with both aspects in this section. Food security and scarcity of water for food production are major problems in many developing countries (820 million of the global 854 million undernourished people live in developing countries).<sup>88</sup>

#### *Soil and land for food production*

The various estimates of global soil availability vary greatly. Most estimates are not based on concrete measurements. One source of fairly reliable data is the 'Global Assessment of Land Degradation' of 1991. According to that report, about 910 million hectares were affected by land degradation to a medium degree, and 302 million hectares to a high degree.<sup>89</sup> Water erosion was the main source of degradation, followed by wind erosion. The agricultural practices of the 'Green Revolution'<sup>90</sup> play a key role in land degradation. Such practices were initiated in the 1970s in developing countries and they still shape agriculture today. Such practices were and are successful in increasing productivity, yet they often have negative impacts on the environmental ecosystems, e.g. erosion, mineral depletion of soils, salinization, overfertilization, pesticide pollution, and development of parasite resistances. Because of this, alternative agricultural practices, such as organic agriculture, are spreading and are increasingly being supported by governments, such as in Brazil, India and Egypt.<sup>91</sup> Genetic technologies have also been discussed concerning their potential to alleviate food insecurity. The

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87 FAO, 2006: *The State of Food Insecurity*, <http://www.fao.org/docrep/009/a0750e/a0750e00.htm> (12.1.2008).

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88 FAO, 2006: *The State of Food Insecurity*, <http://www.fao.org/docrep/009/a0750e/a0750e00.htm> (12.1.2008).

89 FAO, 2002: *World Agriculture, Towards 2015/2030*, <http://www.fao.org/docrep/004/y3557e/y3557e00.htm#TopOfPage> (12.1.2008).

90 The term 'green revolution' was coined by the US Agency for International Development, it refers to an increase in productivity through: 1) new sorts, 2) irrigation, 3) use of artificial fertilizers, 4) use of pesticides, 5) mechanization.

91 El-Hage Scialabba, N. and Hattam, C. (eds.) 2002: *Organic agriculture, environment and food security*, Environment and Natural Resources Series no. 4, FAO, Rome.

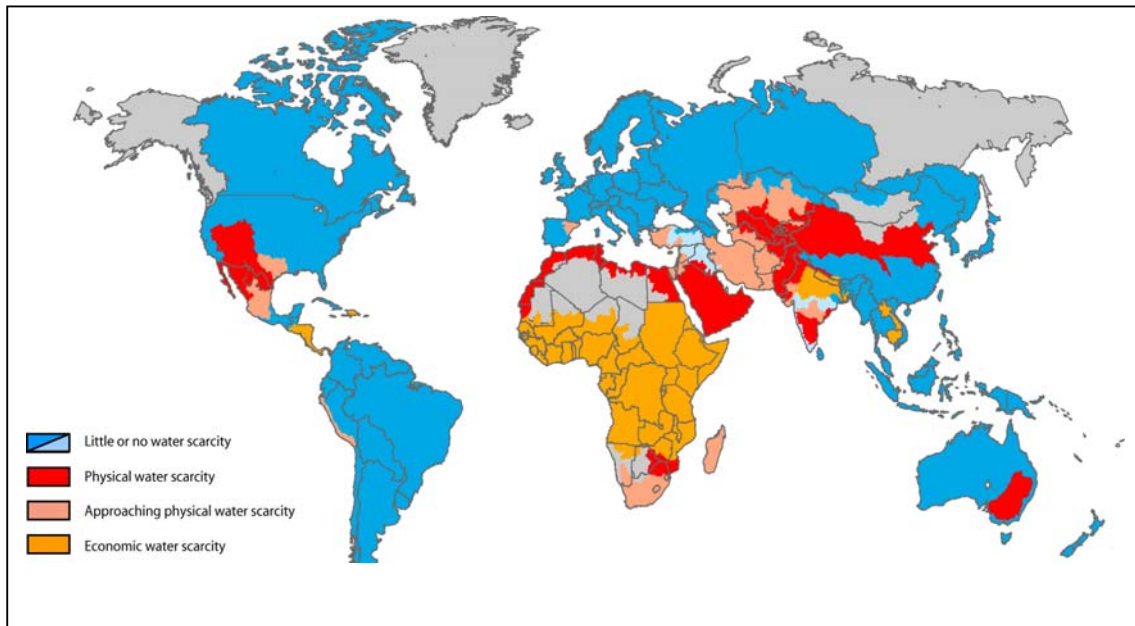


Figure 5: World water scarcity. Source: International Water Management Institute (© IWMI).

socio-political determinants of access to food, however, seem more important in increasing food security than the technologies that increase crop production.<sup>92</sup>

**Water for food production**

Water is not equal to water. It is helpful to make a difference between water for food (70 percent of global freshwater withdrawal), water for basic hygiene and domestic uses (10 percent of global withdrawal), and water for other economic activities (20 percent of water withdrawal).

*Water for food:* Worldwide, economically available, renewable freshwater resources are estimated at 9000-15,000 km<sup>3</sup>/year.<sup>93</sup> About 21 billion people could be fed on these water resources on a purely vegetarian diet. Only 11 billion people can be fed, however, on a diet in which 20 percent of the calories are covered through meat.<sup>94</sup> This illustrates the influence of consumption patterns on resource scarcity irrespective of population growth. Global water consumption is increasing at about double the rate of population increase.<sup>95</sup> Concerning freshwater resources, the problem is clearly not the total global availability, but the regional distribution. On a regional level, more than 700 million people live in countries that suffer from water stress or water scarcity (less than 1700 m<sup>3</sup>/year per person) and by the year 2035 this

92 A different and controversially debated approach to deal with these problems are bio and genetic technologies. Various studies have been carried out on their merits and impacts. Yet it is still unclear how far genetic technologies may also pose negative threats to the environment and humans. Even the FAO sees this problem, despite their generally positive view towards these practices. Other studies indicate that the political and economic capacity of a country to distribute food is more important to avoid famine, than only the agricultural production per se. It also seems that the social and economic benefits of genetic technology are more likely to accrue to countries that are technologically already strong, while technologically poor countries are more likely to experience negative impacts. Rieder, P. and Anwender-Phan-Huy, S., 1997: *Soziale und ökonomische Risiken der Gentechnologie im Agrarsektor*. Institute für Agrarwirtschaft, ETH Zürich.

93 Zehnder, A.J.B., 2002: *Wasserressourcen und Bevölkerungsentwicklung*. Nova Acta Leopoldina 85 (323): 399-418.

94 Zehnder, A.J.B., 2002: *Wasserressourcen und Bevölkerungsentwicklung*. Nova Acta Leopoldina 85(323): 399-418.  
Zehnder, A.J.B., 1997: *Wasser, ein knappes Gut?*, EAWAG News 43, Dübendorf.

95 Zehnder, A.J.B., 2002: *Wasserressourcen und Bevölkerungsentwicklung*. Nova Acta Leopoldina 85(323): 399-418.

number is expected to increase to three billion people.<sup>96</sup>

Water scarce countries are found in North Africa, the Middle East, and Central and South Asia (figure 5). It is expected that the global food market in the year 2025 will have an equal economic value to the present oil market (US\$ 450 billion/year) and that about 25 percent of this will be driven by water scarcity and the needs of water scarce countries which have to import food.<sup>97</sup>

The common issue related to these trends in water and land and food security lies in their potential to further marginalize already vulnerable parts of the society, especially in developing countries. This development has thus the potential to indirectly nourish conflict in the general context of political repression, poverty, marginalization, loss of sustainable livelihoods, precarious living situations and destabilization. The issue here is not an 'environmental' or 'resource' conflict, but rather that environmental and resource trends can, in combination with other factors, increase tensions within a society that may under certain conditions (e.g. repressive state apparatus) channel themselves into violent political conflicts.

### 1.3.2 Energy security

Whether the world currently experiences the end of cheap oil or not is a controversial topic. There are different estimates as to when global oil production will peak, after which the demand is

likely to surpass the supply and prices will rise. However, many more factors influence prices, and the huge price increases in 2005, 2006 and 2007 point to the complex interplay between expectations, supply security, resource availability and also speculation.<sup>98</sup> Pessimists estimate the peak to be reached now or within the coming few years, optimists suggest that it is not likely that peak oil will be reached before 2030, and a mid-field of experts view the peak as likely somewhere between 2015 and 2020.<sup>99</sup> Less controversial are the expectations regarding the geographic concentration of the oil and gas resources, which is likely to continue to increase in the Middle East and Russia in the coming years, as the largest reserves are found there (with about 70 percent of the global conventional oil reserves – see figure 6). It is likely that the oil reserves in the US and Europe will decline first.

Gas resources have a similar geographic concentration as oil resources, but their resource base seems to be broader and still largely unexplored (figure 6). This and its better performance than oil or coal regarding CO<sub>2</sub> emissions make it an increasingly important energy source. Coal seems to have even larger resources and its geographic distribution differs from oil and gas. This makes its use advantageous, and in case clean coal technologies (e.g. capturing its significant CO<sub>2</sub> emissions) become economically feasible, coal might have a bright future. Uranium does not yet seem to be scarce either, and it is becoming an increasingly attractive option as an energy source due to its

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96 World Bank, 2007: Issues Brief: Water – At a Glance. <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20040985-menuPK:34480-pagePK:34370-theSitePK:4607,00.html> (12.1.2008).

Spillmann, K. R., 2000: *Wasser als Thema der Weltpolitik*, in: Kaiser, K. and Schwarz, H. P. (eds.): *Weltpolitik im neuen Jahrhundert* Bundeszentrale für politische Bildung, Bonn.

97 Zehnder, A.J.B., 2002: *Wasserressourcen und Bevölkerungsentwicklung*. Nova Acta Leopoldina 85(323): 399-418.

Yang, H. and Zehnder, A., 2002: *Water Scarcity and Food Import - A Case Study for Southern Mediterranean Countries*, World Development, 30(8): 1413-1430.

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98 US Permanent Subcommittee On Investigations, 2006: *The Role Of Market Speculation In Rising Oil And Gas Prices: A Need To Put The Cop Back On The Beat*, Staff Report, June 27, 2006.

<http://hsgac.senate.gov/files/SenatePrint10965MarketSpecReportFINAL.pdf> (12.1.2008).

Weiner, R., 2006: *Do Birds of a Feather Flock Together? Speculator Herding in the World Oil Market*, RFF Discussion Paper 06-31, Resources for the Future RFF, Washington DC, <http://www.rff.org/rff/Documents/RFF-DP-06-31.pdf> (12.1.2008).

99 BGR, 2003: *Reserven, Ressourcen und Verfügbarkeit von Energierohstoffen 2002*, Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, <http://www.bgr.bund.de> (12.1.2008).

potential to mitigate the climate change. However, the problem of radioactive waste is not yet resolved.<sup>100</sup>

An important overarching aspect regarding energy resources is the still increasing demand, especially due to newly emerging economies such as China and India, and the absence of viable alternatives to replace fossil fuels in the near future and to a significant extent. This leads to sustained competitive pressure for the remaining fossil energy resources with a correspondingly sustained potential for conflicts. Similar trends of increasing demand and competitive pressure due to emerging economies can be expected – and are in some cases already being felt in the case of other key resources of industrialized economies, such as copper or silicon.

Regarding the supply side, the most important aspect is potential strategic power due to monopolistic supply situations that could still increase due to the concentration process in fossil fuel availability. Recent examples are the power of Russia regarding gas supply, as exercised in Ukraine in 2005 and 2006<sup>101</sup> and also the current discussion on who may exploit the resources in the Arctic. How far the pressure from such trends goes and whether it leads to conflicts and, if so, of which escalation level, remains speculative. New, intensified or sustained conflicts may be more likely in relation to resources that are linked to conflicts already found today (e.g. oil, copper, coltan).

An illustration of the potential for new conflicts in the wake of increased competition for resources is the increasing demand for biomass for energy production and the expectation of increased competition for land and water between energy and food crops. This development already became reality in some cases – such as in Mexico in 2007, where soaring corn prices due to increased demand from US ethanol factories led to local riots.<sup>102</sup>

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102 New York Times, 2007: *Thousands in Mexico City Protest Rising Food Prices*, February 1, 2007.

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100 BGR, 2003: *Reserven, Ressourcen und Verfügbarkeit von Energierohstoffen 2002*, Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, <http://www.bgr.bund.de> (12.1.2008).

101 Financial Times, 2006: *Stand-off cuts gas supplies to Europe*, January 2, 2006, [http://www.ft.com/cms/s/0/b78af030-7b68-11da-ab8e-0000779e2340.html?nclink\\_check=1](http://www.ft.com/cms/s/0/b78af030-7b68-11da-ab8e-0000779e2340.html?nclink_check=1) (12.1.2008).

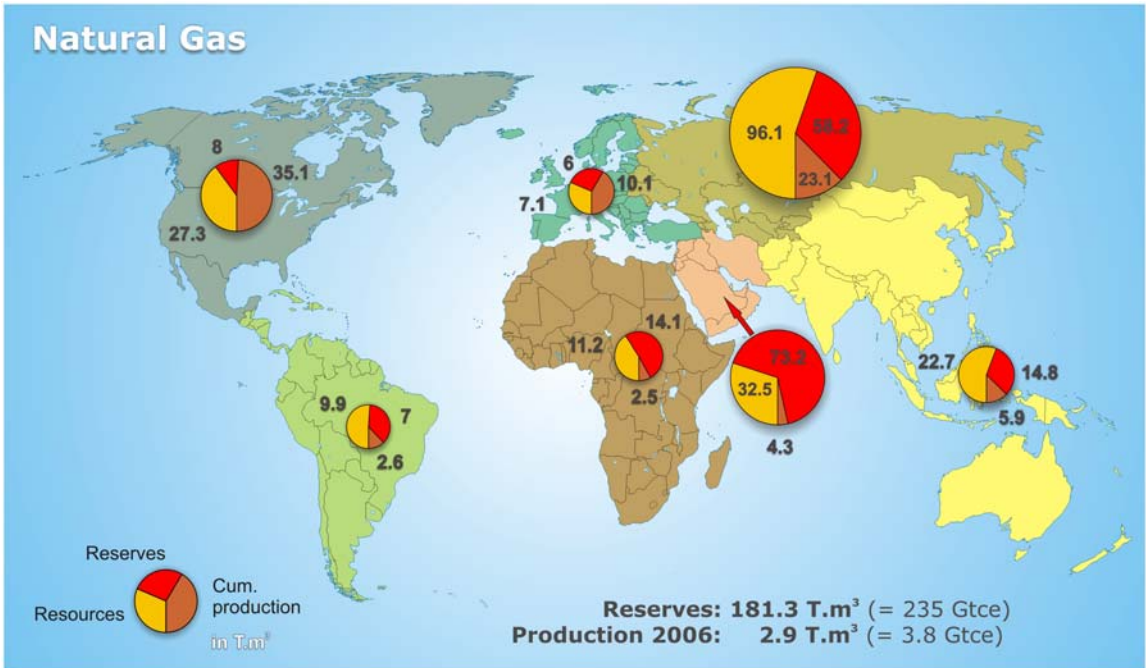
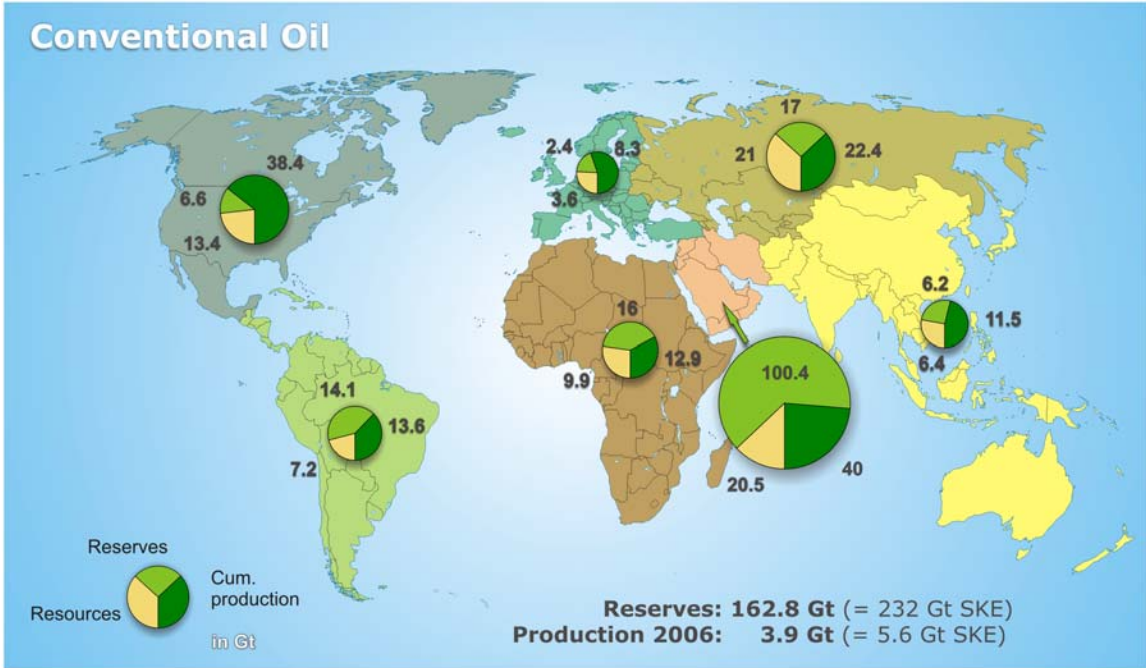


Figure 6: Oil and Gas Potential. Source: Bundesanstalt für Geowissenschaften und Rohstoffe (© BGR, Hannover)

### 1.3.3 Climate change

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change of 2007<sup>103</sup> draws a detailed picture of the expected impacts of climate change and related vulnerabilities and their respective likelihood.

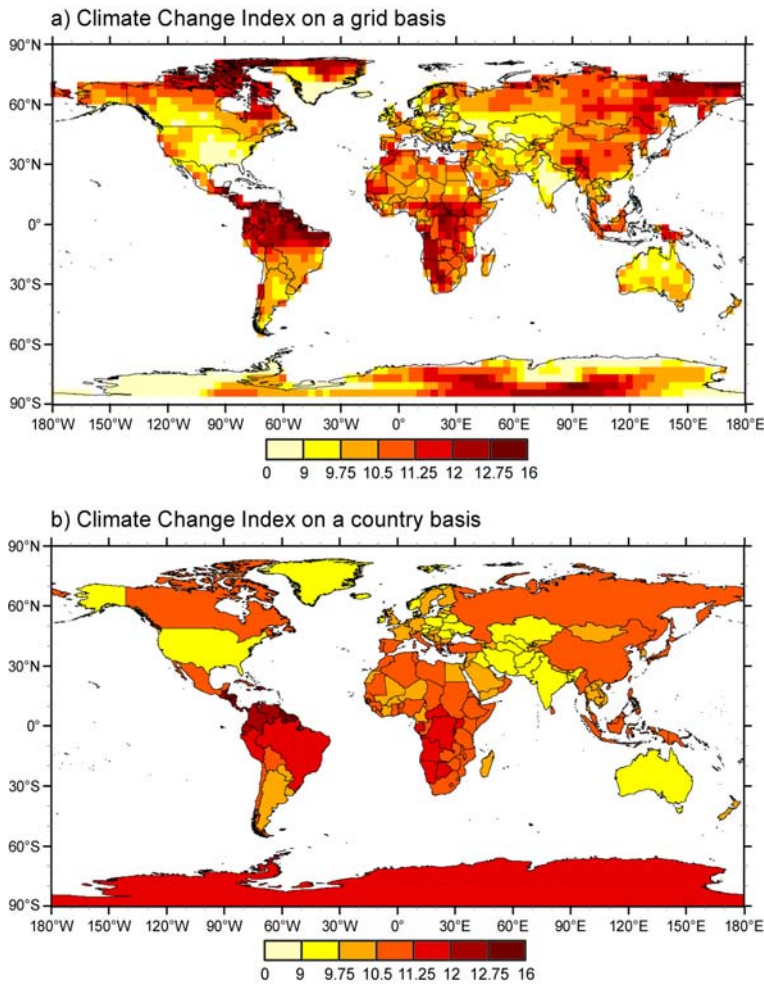


Figure 7: Climate Change Index: Values between 5.7 and 16 indicate additional strong climate events compared to the 1-in-20-years extreme event of today (Reference period 1961-1999).<sup>104</sup>

103 IPCC, 2007: *Summary for Policy Makers*, Contribution of Working Groups I and II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), <http://www.ipcc.ch> (12.1.2008).

104 Baettig, M.; Wild, M. and Imboden, D., 2007, *A climate change index: where climate change may be most*

Although some positive impacts can be identified for moderate levels of climate change (e.g. increased global food production and local crop productivity for mid to high latitudes), most of the impacts are negative. The resilience of many ecosystems is expected to be exceeded this century. For those that experience temperature increases over 1.5 to 2.5 Celsius,

major changes in ecosystem structures are projected with mainly negative effects on biodiversity and ecosystem services such as water and food supply.

We present some key issues for this study in more detail. Decreased water availability is predicted for dry and already water stressed regions. Drought-affected areas are expected to increase. Crop productivity is expected to decrease in lower latitudes, especially in seasonally dry and tropical regions. Increased flooding of coastal areas due to sea-level rise is expected and millions of people in low-lying and densely-populated areas are expected to be affected. Adaptation will be especially challenging in developing countries. For an overview, see figure 7.

Africa emerges as one of the continents most vulnerable to climate change, due to the wide range of effects and a generally low adaptive capacity. The main issues are increased water stress (an additional 75 to 225 million people affected by 2020) and decreased agricultural yields (in some countries by up to 50 percent by 2020 for rain-fed agriculture).

*prominent in the 21st Century*. Geophysical Research Letters, Vol. 34.



For Asia, a main point is decreased freshwater availability, particularly in large river basins, that could, in combination with population growth and increased demand due to higher living standards, affect a billion people by 2050. Small islands are especially vulnerable to sea-level rise and extreme events that can threaten the mere existence of island communities.

As mentioned above in the context of land and water trends, the main importance of this wide range of possible developments in the wake of climate change lies in the increased stress on ecosystems and societies that may result in deteriorated livelihoods, e.g. with increased poverty, marginalization, destabilization, etc. In cases where this is channelled into political movements that meet inadequate responses from their respective governments, violent conflict is a potential scenario.<sup>105</sup>

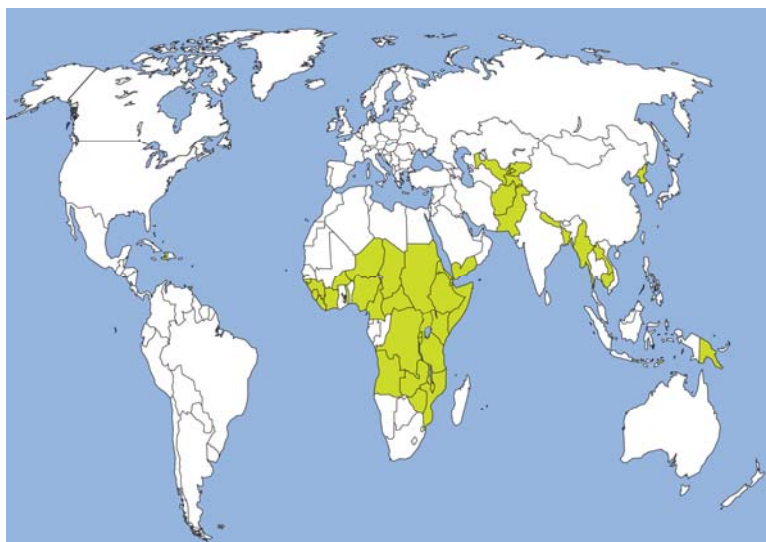


Figure 8: *Weak States*, Source: Schneckener, U. 2007, *Internationales Statebuilding. SWP Study*. Graphics: CSS ETH Zurich.

### 1.3.4 Socio-economic and political conditions of environmental and resource insecurity

Besides trends directly related to the environment and resource use, numerous socio-political boundary conditions play a key role in relation to how far such trends increase the probability of insecurity and conflicts. To assess realistically the importance of environmental and resource-related factors in conflicts, such boundary conditions have to be taken into account. This section thus collects some of the most important boundary conditions generally seen as decisive regarding the conflict character of a certain situation or development.

#### *Politics*

There is some evidence that democratic societies demonstrate more enlightened environmental policies than societies organized under other

political structures. See figure 8 for an overview of 'weak states'. Democracies are rarely, if ever, involved in violent conflicts with one another ('democratic peace theory'). These findings, taken with due caution, could indicate political boundary conditions that could help avoid negative environmental trends from becoming detrimental to human survival and conflicts from escalating into violence. In addition, governments in democratic societies rarely, if ever, face

serious violent challenges for any reason. It could thus be expected that environmental and resource topics would not trigger this either. These links do not only refer to democratic structures but to strong and independent governmental institutions and well-established and enforceable property rights in general. Nevertheless, low income levels combined with a

105 The danger that, without resolute counteraction, climate change will overstretch many societies' adaptive capacities is also the key finding of a recent report by the German Advisory Council on Global Change. WBGU 2008: *Climate Change as a security risk*, London: Earthscan, [http://www.wbgu.de/wbgu\\_jg2007\\_engl.html](http://www.wbgu.de/wbgu_jg2007_engl.html) (12.1.2008).

(quasi) democracy are often related to violent conflict.<sup>106</sup>

### *Economics*

Similarly, there is some evidence that economic development and well-being fosters a decrease in violent conflict and more strict environmental regulations. The latter phenomena is mainly based on the so-called environmental Kuznet-hypothesis, stating that at lower levels of economic development, environmental degradation increases, and at higher levels, environmental quality becomes valued higher as an affluent society can more easily afford to entertain high environmental quality. This hypothesis is however contested and empirical evidence is mixed for different pollutants. As in political structures, economic development is seen to not only affect environmental quality but also conflict behaviour. There is some evidence that economic development restrains violent conflict and that increased trade between nations goes along with less conflict, e.g. 'liberal peace theory'.<sup>107</sup> Thus, like democratic political structures, economic well-being could be a positive factor in avoiding environmental degradation and conflict. The richest one billion of the world's population (approximately the OECD countries) experience very low violent conflict probabilities, the four billion people in economies in transition have a decreasing probability of violent conflict, while the poorest one billion people are likely to experience the

highest probability of violent conflict.<sup>108</sup> Again, these findings have to be taken with due caution. Regarding the 'liberal peace theory', there is also a body of research that points to potentially disintegrating effects to society stemming from increasingly competitive conditions in the wake of neo-liberal economic policies. Regarding democracies and economic development, it should also be pointed out that the potential beneficial effects apply to these societies and their citizens themselves. It does not necessarily inform on how such societies affect other countries and their environment and economic well-being, especially if those other countries are entrapped in conflicts.

### *Cultural Factors and Conflict History*

Several studies found links between ethno-political dominance or polarization and internal conflict. The studies emphasize the importance of such cultural factors in conflicts. Cooperation among ethnic groups seems to foster negotiated and cooperative solutions to environmental problems, while in societies without such cooperation, environmental factors may add to already existing ethno-political conflicts. This issue has gained prominence due to the controversies regarding the importance of environmental factors, resource exploitation and ethnicity in Darfur (see section 1.2.3 above). Besides the importance given to the cultural factor in many studies, the literature points to the history of violent conflict as a further single most important factor for current violent conflict. Gleditsch notes "... a vicious cycle of poverty, authoritarian rule, environmental degradation, and violence."<sup>109</sup> Countries that

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106 Collier, P.; Elliott, V.L.; Hegre, H.; Hoeffler, A.; Reynal-Querol, M. and Sambanis, N., 2003: *Breaking the Conflict Trap - Civil War and Development Policy*, Washington DC: World Bank/Oxford University Press.

107 Mansfield, E.D. and Pollins, B.M., 2001: *The Study of Interdependence and Conflict: Recent Advances, Open Questions and Directions for Future Research*, *Journal of Conflict Resolution* 45(6): 834-859.

Shleifer, A., 2004: *Does Competition Destroy Ethical Behaviour?*, *AEA Papers and Proceedings* 94(2): 414-419.

Olsson, O. and Dalgaard, C. J., 2007: *Why are market economies politically stable? A theory of the capitalist peace*, Working Paper, <http://www.econ.cam.ac.uk/research/aidr/papers/Dalgaard.pdf> (12.1.2008).

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108 Collier, P., 2007: *The Bottom billion: Why the Poorest Countries are Failing and What Can Be Done About It*, Oxford: Oxford University Press.

Collier, P.; Elliott, V.L.; Hegre, H.; Hoeffler, A.; Reynal-Querol, M. and Sambanis, N., 2003: *Breaking the Conflict Trap - Civil War and Development Policy*, Washington DC: World Bank/Oxford University Press, <http://go.worldbank.org/MR2JESLL70> (12.1.2008) (4.1.2008).

109 Gleditsch, N. P., 2007: *Environmental Change, Security, and Conflict*, in: Chester C.; Hampson, F. O. and Aall, P. (eds.): *Leashing the Dogs of War: Conflict*

have experienced violent conflict have a much higher likelihood (about 50 percent) of falling back into a recurring conflict situation, especially in the first five to ten years after signing a peace agreement. For the poorest one billion of the world's population the 'conflict trap' dynamic is even more severe.<sup>110</sup> See figure 2 for an overview.

### *Carrying Capacity*

Under this label, we encompass several issues that are not directly and necessarily linked with the environment and resources, but that can in combination with specific situations in certain societies or ecosystems exceed their system's carrying capacity. This underlines the topic already encountered above, namely the potential that such issues further marginalize vulnerable parts of the society and may thus nourish conflict in the general context of poverty and destabilization.

Population pressure and migration are among the most prominent topics. Neo-Malthusians consider global population growth and also more local population pressure to be major problems. However, empirical evidence is weak and no clear links between population pressure and violent conflict could hitherto be established. It is however admitted that locally or regionally, population pressure could stimulate conflict, especially in very poor areas and particularly when some conflict over resource use between ethno-political groups already exists. Other scholars point to different mechanisms and arrive at opposite conclusions, namely that

population growth stimulates innovation in agriculture.<sup>111</sup> In any case, population growth and pressure could be one among other influential factors potentially determining conflict in the future. One cause of regionally increasing population pressure is seen in migration and refugees. Here, current evidence suggests the important distinction that environmental refugees are not linked to conflicts in the receiving region, while refugees fleeing violent conflict are.<sup>112</sup> The link with population pressure thus seems to lie in the combination with other factors, such as conflict history or ethno-political tensions, rather than in population pressure itself.

Further topics often mentioned in relation to environmental and societal carrying capacity with potentially detrimental consequences regarding poverty and destabilization are inequality, the global consumption growth and certain aspects of globalization, but also epidemic diseases (e.g. AIDs), natural and technological disasters and the lack of access to clean drinking water. The magnitude of the problem is enormous, e.g. with five million people dying annually due to diseases related to unclean water and sanitation facilities. We emphasize, however, that the link between these issues to conflicts is very indirect and empirical evidence is very difficult to obtain.

## Summary

In essence, the key point in examining environmental and resource trends and socio-, economic and political boundary conditions in relation to conflicts is to emphasize which factors may play an important role regarding measures to be undertaken when dealing with

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*Management in a Divided World*, Washington, DC: United States Institute of Peace Press, in press, <http://hei.unige.ch/sections/sp/courses/0607/gleditsch/readings/Gleditsch-ENVIRONMENTAL-CHANGE-SECURITY-AND-CONFLICT.pdf> (12.1.2008).

110 Collier, P., 2007: *The Bottom billion: Why the Poorest Countries are Failing and What Can Be Done About It*, Oxford: Oxford University Press.  
Collier, P.; Elliott, V.L.; Hegre, H.; Hoeffler, A.; Reynal-Querol, M. and Sambanis, N., 2003: *Breaking the Conflict Trap - Civil War and Development Policy*, Washington DC: World Bank/Oxford University Press, <http://go.worldbank.org/MR2JESLL70> (12.1.2008).

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111 Boserup, E. 1965: *The Conditions of Agricultural Growth – The Economics of Agrarian Change and Population Growth*. London: Allen & Unwin.

112 Gleditsch, N.P.; Nordas, R. and Salehyan, I., 2007: *Climate Change and Conflict: The Migration Link – Coping with Crisis*, International Peace Academy [http://www.ipacademy.org/asset/file/169/CWC\\_Working\\_Paper\\_Climate\\_Change.pdf](http://www.ipacademy.org/asset/file/169/CWC_Working_Paper_Climate_Change.pdf) (12.1.2008).

environment-related conflicts. Furthermore, this overview helps to highlight which factors may become increasingly important in the context of such conflicts in the future. The links between these trends, boundary conditions and conflicts are never mono-causal and direct. The main line of argument emphasizes the importance of such trends and conditions regarding oil and lootable resources linked to armed conflicts and civil wars, on the one hand, and to the marginalization of already vulnerable parts of societies on the other. Thus the potential of these trends to aggravate conflict must be viewed in the general context of weak or autocratic state institutions, poverty, marginalization, loss of sustainable livelihoods, precarious living situations and destabilization processes.

## Conclusions of Part 1

This study adopts a broad approach to the interaction between environmental factors and violent conflict, focusing on how resources are used and managed. We believe that this corresponds more to reality than an approach that only focuses on individual resources and the potential for these resources to generate conflict. We have proposed three groups of conflicts related to the use of environment and natural resources, motivated by the conflict characteristics and their use in structuring the institutional assessment and the types of measure we will discuss in parts 2 and 3:

- 1) Indirect use: ‘resource curse’ conflicts – related to the commercial use of resources, characterized by a high escalation potential, calling for measures that regulate the global trade of these resources.
- 2) Direct use: ‘local and regional resource scarcity’ conflicts – often related to subsistence agriculture, characterized by low levels of escalation, yet linked to destabilization processes and human insecurity, calling for measures related to cooperative sustainable development.

- 3) Highly escalated conflicts and tensions in conflict prone regions – ‘hot spots’ – where environmental factors play a role, although this cannot be isolated from other socio-cultural, economic and political factors. This calls for structural and operational conflict prevention measures, which deal with environmental factors in an integrated and transversal manner.

In all types of conflict we tread a delicate balance: the importance of environmental factors in most conflict must be acknowledged, yet it is equally important not to depoliticize conflicts and approach them in a purely economic or technical manner. The following list summarizes key lessons learned for environment-related conflicts from the analysis in this part I:

*Conflict transformation approach:* The conflict transformation approach views conflicts as part of social interaction and development. The key question is how one deals with conflicts, e.g. violently or non-violently. The aim of conflict prevention, therefore, is not to suppress conflicts, but to avoid violent means of dealing with them.

*The environment is one factor among others:* Conflicts are never mono-causal, the environment is only one amongst other conflict factors that needs to be addressed in a transversal manner.

*Different types of conflict call for different measures:* Differentiating conflicts according to the three types described above helps to identify optimal conflict prevention and transformation strategies.

*Hedge against overriding carrying capacity:* In the context of current conflicts, there are no absolute limits to the carrying capacity of the earth, yet there seems to be a relative carrying capacity limit, and this needs to be taken into consideration.

*Public Participation and local process ownership:* Solutions are not seen as being legitimate and appropriate if there is no public participation, and if the process that led to the outcome is not

carried by the stakeholders affected by it (“Felt needs are real needs”).

*Sustain the livelihoods of vulnerable parts of society:* Conflicts are often related to destabilization processes, deteriorating human security, marginalization and precarious livelihoods of often already vulnerable parts of society. Providing sustainable livelihoods to all parts of society also under changing conditions is thus paramount to keeping a society’s conflict prevention capacity intact.

*Good governance and strengthening institutions:* Institution building is key to conflict prevention. According to the World Bank, ‘good governance’ entails ‘having a say’, accountability, political stability, government effectiveness, regulatory burden, rule of law, and control of corruption.<sup>113</sup>

This first section and its lessons on links and trends provide the rationale for a better consideration of environmental factors when seeking to prevent conflicts. We will attempt to address this both in relation to what the UN is already doing today (part 2), and as in terms of further tools and measures that could be strengthened and adopted in the future (part 3).

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113 Kaufmann, D., 2005: *Myths and Realities of Governance and Corruption*, Global Competitiveness Report: 81-98, [http://www.worldbank.org/wbi/governance/pdf/2-1\\_GCR\\_Kaufmann.pdf](http://www.worldbank.org/wbi/governance/pdf/2-1_GCR_Kaufmann.pdf) (12.1.2008).

## Part 2: The Role of the United Nations

### Key message:

**The UN has unique roles to play in environmental conflict prevention, as it has both expertise and legitimacy in environmental affairs and conflict prevention. Using synergies between these two fields would greatly enhance the effectiveness of its activities. The topic of 'environment and conflict prevention' should be further integrated within existing UN units, rather than improperly mainstreamed by tagging it on as a separate entity.**

### Introduction

While Part I outlined the links between the environment and conflict, as defined by different conflict types, this part of the report will highlight UN accomplishments, shortcomings and the challenges that it has faced in its attempt to prevent environment-related conflicts. The unique function and capacity of the UN as a global institution with historical legitimacy places it in a unique position for engaging in environment and conflict prevention activities. Its existing institutional structure and expertise allows it to represent the interests of member states, make recommendations and implement international agreements. The UN's respectability and financial accountability authorizes it to address trans-border issues and reach organizations and individuals the world over. Moreover, it is an essential actor in creating networks with civil society actors, benefiting from their diverse knowledge and experience, building on existing links and providing them with an entry point to the UN platform and global policy making arena.

Firstly, we outline how the UN's interpretation of the environmental factor in preventing conflicts has evolved historically, and its strategic attempt to integrate the environmental factor and move from a culture of 'conflict reaction' to one of 'conflict prevention'. This is done particularly with the support of key UN documents. Secondly, in regard to the extent to which environmental factors are considered in

conflict prevention, specific UN institutions and agencies, their activities and their shortcomings will be summarized. For further understanding, UN accomplishments will be interpreted in correspondence to the three aforementioned types of conflict: indirect use, direct use and conflict 'hot spots'. Thirdly, some UN-specific conclusions will be made. This is not meant to be a comprehensive evaluation of the UN, but a summary of key ideas, policies and frameworks which analyze the gaps in the field of environmental conflict prevention programmes on a macro-policy scale.

### 2.1 The UN's evolutionary approach in linking environment and conflict prevention

The UN has produced reports, declarations and resolutions that focus on environmental protection and conflict prevention as separate issues, and some which acknowledge their linkages and address them transversally.<sup>114</sup> While it can be contested whether conferences, resolutions and documents have in fact led to 'environmental sustainability' and 'conflict prevention' programmes, the international attention they have received remains an important reflection of UN action. UN conferences, resolutions and documents illustrate that there has been an evolution from a focus on environmental protection as a single issue, to identifying it as a cross-cutting theme that influences and is influenced by other social concerns such as the equitable access to resources, sustainability and conflict prevention.

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<sup>114</sup> Please see a summary of relevant documents in Annex A: UN Reports, Declarations and Resolutions on the environment and conflict prevention.

### 2.1.1 From environmental protection to equitable resource access

An overview of the major events which influenced the UN's approach in addressing environmental problems and conflict prevention is provided below.

The 1972 United Nations Conference on the Human Environment in Stockholm, Sweden, was the first major international conference which focused on the relationship between humans and the environment. In reference to how previous war tactics such as defoliation and land clearing had negatively effected the environment, the term 'ecocide' was introduced.<sup>115</sup> The Stockholm Conference, as it is often referred to, led to other environmental conferences, such as the World Population Conference in Bucharest (1974), the World Food Conference in Rome (1974), the UN Conference on Human Settlements in Vancouver (1976), the UN Water Conference in Mar del Plata, Argentina (1977), and the UN Conference on Desertification in Nairobi (1977).<sup>116</sup> These focused predominantly on 'environmental protection' as a priority goal. After a quiet period in the late 1970s, reports such as the Brandt-Report (1980) and the follow-up by the Brundtland Commission (1987) revived an interest amongst international organizations to look at the environmental impact on security and conflicts and what they could do to address it.<sup>117</sup> The Brundtland Commission's Report<sup>118</sup>, *Our Common Future*,

represents a landmark in how the environment continues to be perceived today.<sup>119</sup> The report emphasized the need to integrate environmental sustainability with poverty reduction and economic development in order to effectively address the inequalities between North and South.<sup>120</sup>

This renewed wave of concern led to the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro<sup>121</sup> (1992).<sup>122</sup> UNCED led to a collection of Multilateral Environmental Agreements (MEAs) demonstrating an international commitment to sustainable development in general and the environment in particular.<sup>123</sup> These include: Agenda 21; The Rio Declaration on Environment and Development; the UN Convention on Biological Diversity (CBD)<sup>124</sup>; the Statement of Forest Principles; and the United Nations Framework Convention on Climate Change (UNFCCC).<sup>125</sup> Following the Rio Conference, the United Nations Commission on Sustainable Development (UNCSD), the Inter-agency Committee on Sustainable Development and the High-level Advisory Board on Sustainable Development

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115 Soroos, M. S., 2005: *Global Institutions and the Environment: An evolutionary perspective*, in: Axelrod R.S. et al. (eds.): *The Global Environment: Institutions, Law and Policy*, Washington, DC: CQ Press: 24.

116 Soroos, M. S., 2005: *Global Institutions and the Environment: An evolutionary perspective*, in: Axelrod R.S. et al. (eds.): *The Global Environment: Institutions, Law and Policy*, Washington, DC: CQ Press: 24.

117 Brauch, H.G., 2005: *Environment and Human Security: Towards Freedom from Hazard Impacts*, InterSecTions, Publication of the United Nations University Institute for Environment and Human Security, No.2: 19.

118 Formerly known as the World Commission on Environment and Development (WCED), it was assembled by the United Nations in 1983.

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119 World Commission on Environment and Development, 1987: *Our Common Future*, New York: Oxford University Press.

120 Soroos, M. S., 2005: *Global Institutions and the Environment: An evolutionary perspective*, in: Axelrod R.S. et al. (eds.): *The Global Environment: Institutions, Law and Policy*, Washington, DC: CQ Press: 24.

121 This Conference is informally known as The Earth Summit.

122 Soroos, M. S., 2005: *Global Institutions and the Environment: An evolutionary perspective*, in: Axelrod R.S. et al. (eds.): *The Global Environment: Institutions, Law and Policy*, Washington, DC: CQ Press: 24.

123 See: UNCED: *UNCED Collection*, CIESEN Dataset Guide, <http://www.ciesin.columbia.edu/datasets/unced/unced.html> (12.1.2008).

124 Natural Resource Canada, 2003: *Organizations, Agencies and Fora*, NRCan's role internationally, IISD, Last Updated: March 30, 2007, <http://www.nrcan-rncan.gc.ca/sd-dd/internat/linkorgs.html> (12.1.2008).

125 Brief descriptions of these documents can be found in Annex A.

were established to implement the Rio agreements.<sup>126</sup>

While the UN Earth Charter was also drafted at the UNCED, it did not become an official UN Resolution such as Agenda 21 and the Rio Declaration, but is now considered a global consensus document. Mohamed Sahnoun advocates conflict prevention through the Earth Charter's path to sustainable development: the Earth Charter calls us to "implement comprehensive strategies to prevent violent conflict and use collaborative problem solving to manage and resolve environmental conflicts and other disputes" (Sub-principle 16.b).<sup>127</sup> This demonstrates the shift from viewing environmental protection in isolation towards a broader picture of sustainable development and conflict prevention.

The UNCED is considered to be the catalyst that forced not only organizations, but also heads of state to become committed to the debate and represent their country's interests and goals. Therefore, the environment became a crosscutting theme at other conferences such as the World Conference on Human Rights in Vienna (1993), the United Nations Conference on Population and Development in Cairo (1994), the World Summit on Social Development in Copenhagen (1995), and the Fourth World Conference on Women in Beijing (1995). By the time of the World Summit for Sustainable Development (WSSD) in Johannesburg (2002), the 'hype' of environmental protection had been replaced by other important issues such as poverty reduction, the inequalities between rich and poor and the purpose of economic growth initiatives to

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126 United Nations, 1997: *The Earth Summit*, Department of Public Information, May 23, 1997, <http://www.un.org/geninfo/bp/enviro.html> (12.1.2008).

127 Sahnoun, M., 2005: *Degradation of the environment as a cause of violent conflict*, in: Corcoran P.B.: *The Earth Charter in Action: Toward a Sustainable World*, Netherlands, Royal Tropical Institute (KIT): 157-8.

combat such problems.<sup>128</sup> Due to this and other reasons, the WSSD has been criticized for not contributing to any progress on sustainable development, despite the creation of the Johannesburg Plan of Implementation.<sup>129</sup>

From the list of UN documents compiled in Annex A, one can conclude that from the period of 1976 until 1997 all of the documents (excluding the United Nations Convention to Combat Desertification (UNCCD)) focused on addressing structural conflict prevention and mostly concentrated on only one type of resource use conflict – either indirect use, direct use, or conflict 'hot spots'. However, from 1997 onwards, the UN policies have been increasingly geared towards a combination of both structural and operational measures as well as addressing more than one of the types of conflict.

This is due, in part, to a rise in intra-state conflicts in the post-Cold War era of the early to mid-1990s, which led to a revived occupation with security issues. This created new challenges for the UN in conflict prevention and humanitarian assistance, and raised novel questions as to these conflict's potential threats to the environment.<sup>130</sup> Thus, the positive politicization of environmental factors since 2000 has placed pressure on UN Member States to create national frameworks.<sup>131</sup> Moreover, the UN began to reflect a programmatic shift towards an emphasis on the equitable access to resources, the environment in development

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128 Soroos, M. S., 2005: *Global Institutions and the Environment: An evolutionary perspective*, in: Axelrod R.S. et al. (eds.): *The Global Environment: Institutions, Law and Policy*, Washington, DC: CQ Press: 24.

129 UN, 2005: *The Johannesburg Plan of Implementation*, [http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/POIToc.htm](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIToc.htm) (12.1.2008).

130 Brown, O., 2005: *The Environment and our Security: How our understanding of the links has changed*, A contribution to the International Conference on Environment, Peace and Dialogue among Civilizations Tehran, Iran, May 9-10, 2005.

131 For example, there has been increasing pressure placed on China, a permanent member of the Security Council, to embark on national reform of its environmental policies in order to be more 'environmentally friendly'.



practice and links between the environment and conflicts.

### 2.1.2 Addressing conflict prevention: the UN Secretary-General

During the same period that policies in environmental protection were moving towards addressing environmental resource access, 'conflict reaction' was moving towards achieving 'conflict prevention'.

#### *The Agenda for Peace*

The end of the Cold War gave the UN another chance to take a leading position in achieving global peace and security. With optimism in hand, the newly appointed Secretary-General Boutros Boutros-Ghali was mandated to present recommendations on strengthening the UN's capacity in preventive diplomacy, peacemaking and peacekeeping and post-conflict peace-building. The result was the 'Agenda for Peace'<sup>132</sup> which emphasized the position of the UN's military force in conflict resolution and humanitarianism.<sup>133</sup> The document postulated the right of the UN to intervene in a state in the name of its citizen's human rights, a debate that was later re-discussed in documents such as 'The Brahimi Report'.<sup>134</sup> Despite Boutros-Ghali's aspirations, the post-1991 period actually saw an escalation of conflicts and humanitarian failures by the UN and other organizations in dealing with armed conflicts. For example, the contested military operations in Angola, Somalia, Yugoslavia, Afghanistan, Haiti and Rwanda led

to a rise in criticisms of the duty, purpose and capabilities of the UN in preventing and responding to armed violence. Due to the realization that the UN was doing 'too little, too late' in conflict prevention, efforts were made to re-orientate the UN programmes towards a more long-term, structural approach to conflict prevention.

#### *The Prevention of Armed Conflict*

In 2001, ten years after the 'Agenda for Peace', former UN Secretary-General Kofi Annan's 'Report of the Secretary-General on the Prevention of Armed Conflict', reiterated the importance of UN conflict prevention and the need to address deep-rooted causes of conflict, including environmental factors. Specifically, he argued that: "Environmental degradation has the potential to destabilize already conflict-prone regions, especially when compounded by inequitable access or politicization of access to scarce resources. I urge Member States to renew their efforts to agree on ways that allow all of us to live sustainably within the planet's means. Programmes relating to the environment not only are a vital way of systemically reducing one of the worst sources of tension within or among societies, they can also have a positive impact locally by promoting dialogue around shared resources and enabling opposing groups to focus on common problems."<sup>135</sup> Despite the international attention and praise that the report received, the rhetoric of conflict prevention has not been adequately translated into long-term UN action as many of their programmes continue to be post-conflict related. Furthermore, the two issues of environment and conflict have not been explicitly linked in policy implementation.

#### *A more secure world, our shared responsibility*

Commissioned to the Secretary-General's High-level Panel on Threats, Challenges and Change,

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132 Boutros-Ghali, B., 1992: *An Agenda for Peace: Preventive diplomacy, peacemaking and peace-keeping*, Report of the Secretary-General pursuant to the Statement adopted by the Summit Meeting of the Security Council on January 31, 1992, A/47/277, United Nations, <http://www.un.org/Docs/SG/agpeace.html> (12.1.2008), June 14, 1992.

133 Slim, H., 1995: *Military Humanitarianism and the New Peacekeeping: An Agenda For Peace?*, Journal of Humanitarian Assistance, <http://www.jha.ac/articles/a003.htm> (12.1.2008).

134 *Report on the Panel on UN Peace Operations, Brahimi Report*, A/55/305, August 21, 2000, [http://www.un.org/peace/reports/peace\\_operations/](http://www.un.org/peace/reports/peace_operations/) (12.1.2008).

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135 Annan, K., 2001: *Prevention of armed conflict*, Report of the Secretary-General, A/55/985 S/2001/574, United Nations, June 7, 2001. <http://www.undp.org/cpr/documents/prevention/SG%20report%20on%20prevention%20of%20armed%20conflict.pdf> (12.1.2008).

‘A more secure world, our shared responsibility’ (2004) was particularly important as environmental degradation was identified for the first time as one of the six major threats that require preventive action from the United Nations.

Defining the provision of security as a ‘shared responsibility’ was particularly significant and provided the background to naming poverty, infectious disease, environmental degradation, armed conflict, terrorism, organized crime, and weapons of mass destruction as the six major threats to security. It emphasized that most security, development and humanitarian initiatives continue to exclude the environment from their analysis, despite its increasing impact on human security. In addition, it criticized the lack of international initiatives: “Nor is there coherence in environmental protection efforts at the global level. Most attempts to create governance structures to tackle the problems of global environmental degradation have not effectively addressed climate change, deforestation and desertification. Regional and global multilateral treaties on the environment are undermined by inadequate implementation and enforcement by the Member States.”<sup>136</sup> This Report is representative of a time when the UN was re-assessing its role and influence as military intervention by the US was taking place in Iraq without the backing of the Security Council.

### 2.1.3 Overarching debates and their relevance to environmental conflict prevention

Critics would argue that the UN is limited in its ability to deal with the environmental factors of conflict prevention for many reasons. The following paragraphs examine the significance of

environmental conflict prevention in the context of a number of ongoing key debates on UN responsibilities in the provision of global peace and security. The debates focus on the distinct function of the UN; efforts towards reaching the Millennium Development Goals; conflict prevention and post-conflict peacebuilding; the issue of state sovereignty; institutional reforms; the mission of the Security Council in North-South relations; and the potential to engage and cooperate with civil society. All of these debates are related to the goal of achieving adequate environmental conflict prevention within the UN system and its Member States.

#### *Achieving the Millennium Development Goals*

The Millennium Development Goals (MDGs) have committed states to eight guiding principles which include: the eradication of extreme poverty and hunger; achieving universal primary education; promotion of gender equality and women’s empowerment; reduction of child mortality; improvement of maternal health; combating HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and developing a global partnership for development. The last two commitments are the most relevant for this study and will be explained in terms of conflict prevention methods.

MDG Goal seven on ensuring environmental sustainability pushes for the implementation of sustainable development initiatives into country policies, a reduction in the number of persons without access to safe drinking water, and the improvement of slum dwellers’ quality of life; all of which could be hindered by the vulnerability or presence of conflict. The Common Country Assessment (CCA) and the United Nations Development Assistance Framework (UNDAF) are important exercises which can guarantee the incorporation of environmental factors in their country assessments. MDG Goal eight, which outlines how to achieve a global partnership for development, is related to strategies on the importance of networking, cooperation and knowledge sharing, in order for Northern countries to be more involved in the problems of the South. Development, sustainability and peace all require a transversal involvement of the

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136 United Nations, 2004: *A more secure world, our shared responsibility*: The Report of the Secretary-General’s High-Level Panel on Threats, Challenges and Change, Secretary-General’s High-level Panel on Threats, Challenges and Change. A/59/565, New York, December 2, 2004), 27 para. 54, <http://www.un.org/secureworld/> (12.1.2008).

UN. Therefore, critics call for an acceleration of UN efforts towards reaching the MDGs by working together with civil society and other actors<sup>137</sup> and by investing in the prevention of environment-related conflicts which could otherwise jeopardize advancement towards achieving the MDGs.

*Conflict prevention and post-conflict peace-building: Introducing “environment”*

Despite the recommendations of the former Secretary-General Kofi Annan to prioritize a culture of prevention during all phases of a conflict, many programmes within and outside the UN continue to focus on the post-conflict phases, instead of emphasizing the root causes of conflict – and how to prevent a conflict from occurring in the first place. Accordingly, conflict prevention should not be identified as a particular ‘phase’ in the life-span of an armed conflict, but rather a continuous exercise prior, during and after the escalation of a conflict. The implementation of recommendations put forth in recent UN and non-UN reports such as ‘In Larger Freedom’ or ‘The Responsibility to Protect’ indicate that there is significant hesitation to embrace early warning and prevention as key principles in addressing human insecurity and global stability. The preventive momentum gained during Kofi Annan’s administration is in danger of being lost; thus there needs to be a re-emphasis on conflict prevention activities that take the environmental factor into consideration, at the field and programme level as well as system-wide. The Security Council works on highly escalated conflicts, or conflict ‘hot spots’. UNEP, the UN Disarmament, Demobilization and Reintegration Programme (DDR), the newly created Peacebuilding Commission and the UN Economic and Social Council’s Regional Commissions, focus almost exclusively on post-conflict reconstruction, rehabilitation and assessments. While post-conflict

reconstruction is important because of the great probability of renewed regression into conflict, the prevention of other countries from experiencing conflict in the first place should not be ignored. While the United Nations Development Programme’s (UNDP) Bureau for Crisis Prevention and Recovery (BCPR) emphasizes the need for early warning systems, the linkage between the environmental factor and conflict prevention is not yet clearly recognized and applied.

Here two paths can be identified: introducing “environment” into the conflict prevention debate, or introducing “conflict prevention” into the environmental debate. From interviews with various UN staff, it seems the former is a more promising way forward, as the latter could lead to unnecessary overloading and the “securitization” of the environmental discourse.<sup>138</sup> For example, the UN debate on the impact of climate change on peace and security in 2007 was an attempt to achieve the former. However, the results demonstrated the presence of progression in thought but not necessarily in action.<sup>139</sup>

*Fear of Encroachment on Sovereignty*

The continuous debate surrounding the sovereignty of Member States to manage their own resources and deal with their internal conflicts often places the United Nations in an awkward position as it is restrained from involving itself in national resource management policies unless requested to do so.

In addition, many countries with aspirations for higher economic growth argue that international environmental efforts threaten to limit their economic growth potential through policy restrictions and a shift of priority from the economy to the environment.<sup>140</sup> Furthermore,

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137 Renner, M. and French, H., 2004: *Linkages between environment, population and development*, in: Woodrow Wilson International Center for Scholars: *Environmental Change and Security Program Report*, Washington: 58.

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138 Interview with UN Staff, New York.

139 UN Security Council, 9000, 5663<sup>rd</sup> Meeting, <http://www.un.org/News/Press/docs/2007/sc9000.doc.htm> (12.1.2008).

140 Scott, P.T. and Trollalden, J.M., 1992: *International Environmental Conflict Resolution: Moving Beyond*

“...environmental scarcities weaken government institutions by increasing society’s demands on the government, while decreasing the capacity of the government to meet the demands”.<sup>141</sup> The weight of the impact of environmental stress is dependent on “the national political process (interaction between state, society and economy but also how knowledge is used for adaptation and mitigation purposes), and on the structures of governance”.<sup>142</sup> However, the reverse is also true; investment in environmental management processes in the present could prevent a future stress on both the environment and on the national political and economic systems. While it is crucial that the UN and other organizations place pressure on countries to invest in the environment, there must be parallel capacity-building on observation, early warning systems, assessments, prevention, preparedness, response and recovery, support, coping strategies and dialogue promotion. Preaching change but not politically acting on it at an international level only perpetuates the resource capture and ecological marginalization in many developing countries and places a hindrance on their development.

### *UN Institutional Reform*

Within the UN, the organizational structure continues to be an impediment for new ideas to be formulated, resolutions passed and programmes created to focus on dealing with the environmental factors of conflict prevention. As a ‘low politics’ issue, the environment takes the backseat to UN Security Council ‘high politics’ despite its relevance in most conflicts. The

complex structure of the UN often prevents binding agreements from the top from becoming a priority at the programme level, and similarly the experiences of the programmes and funds are not always communicated back to the Principal Organs for amendments and reconsideration. This restricts the accomplishments of smaller UN agencies as they do not carry the mandate or the power to put forth binding resolutions. Its organizational framework also makes it problematic to maintain coherence between the different agencies, programmes and organs as little information is shared amongst them.<sup>143</sup> At the same time, the UN also has great difficulty in keeping sensitive information confidential, a fact that often impedes its mediation effectiveness.<sup>144</sup> Therefore, it is necessary to provide a mechanism which encourages the lessons learned from the UN Programmes and Agencies working on environmental factors in conflict prevention to be communicated to the Principal Organs, and to each other. At the same time, a stronger policy on the privacy of sensitive issues should be better enforced to enable trustworthy mediation efforts.<sup>145</sup> The call for UN institutional reform is not a new one, and specific recommendations on how to expand the Security Council are expressed in former UN Secretary-General Kofi Annan’s Report, ‘In larger freedom: towards development, security and human rights for all: Report of the Secretary-General’.<sup>146</sup>

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*Rio*, World Foundation for Environment and Development.

- 141 Kameri-Mbote, P., 2004: *Environment and Conflict Linkages: An Overview*, International Environmental Law Research Centre, Presentation, September 16-19, 2004, [http://www.ielrc.org/activities/presentation\\_0410.htm](http://www.ielrc.org/activities/presentation_0410.htm) (12.1.2008).
- 142 Brauch, H.G., 2005: *Environment and Human Security: Towards Freedom from Hazard Impacts*, InterSecTions, Publication of the United Nations University Institute for Environment and Human Security, 2: 19.

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- 143 Thakur, R. and Schnabel, A., 2003: *Conflict Prevention, The Secretary General’s Report: The Way Forwards*, Report of a UNU/EOSG Expert Forum, Tokyo: United Nations University: 4.
- 144 A point highlighted by Jon Martin Trondallen, in an interview with Simon Mason in November 2007.
- 145 De Soto, A., , 2007, in: Hardtalk, interviewed by Stephen Sackur <http://news.bbc.co.uk/2/hi/programmes/hardtack/6998535.stm> (12.1.2008).
- 146 Annan, K., 2005: *In larger freedom: towards development, security and human rights for all*, Report of the Secretary-General, A/59/2005, United Nations, March 21, 2005. <http://www.un.org/largerfreedom/contents.htm> (12.1.2008).

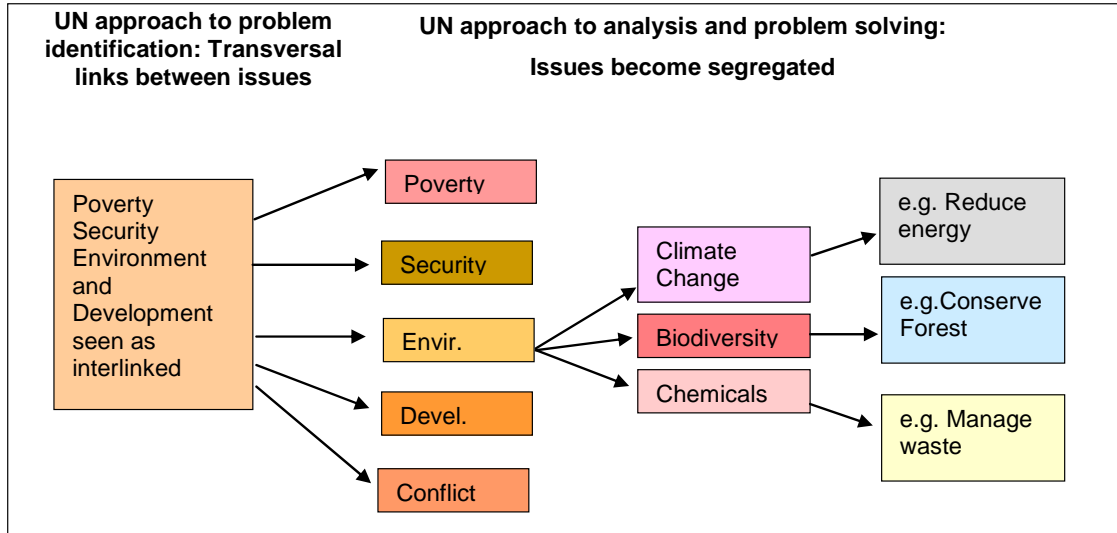


Figure 9: The gap between UN problem identification, analysis and solution making<sup>147</sup>

There continues to be an ideological and practical gap between the activities conducted on peacebuilding and conflict prevention and those that place an emphasis on environmental resource management. There is thus little interdisciplinary knowledge transfer within the UN system, as the issues are addressed in isolation of each other.<sup>148</sup> This is due to the common assumption that the environment should be analyzed separately from social, political and economic systems due to their ‘soft’ relationship.<sup>149</sup> Therefore, many programmes fail to enforce a stronger connection between ecosystems and societal actions, despite their integrated effect on one another.

Figure 9 illustrates a policy gap as issues are identified as being inter-related in the beginning, however in the problem analysis and solving phase, they become segregated and addressed separately from each other.<sup>150</sup> In order to fill such a gap, UN programmes should more clearly outline the linkages between proneness to conflict and the environment, socio-economic institutions and other actors, and emphasize a more transversal approach in its problem-solving strategies.

*Role of the UN Security Council and North-South debates in addressing unequal access to resources and sustainability*

The reports that place conflict prevention as a priority over the environment show an emphasis on operational prevention of escalated conflicts, usually involving the UN Security Council. These resolutions often have greater leverage than those used to address structural conflict prevention. Thus, if structural conflict prevention is to gain greater prominence and impact, the UN Security Council needs to put forth more resolutions that take the long term approach into consideration. As structural

147 This diagram has been interpreted from: United Nations University Centre, 2001: *WSSD International Eminent Persons Meeting on Inter-linkages: Strategies for bridging problems and solutions in the further implementation of sustainable development*, 3-4 September 2001, Japan: 2.

148 United Nations University Centre, 2001: *WSSD International Eminent Persons Meeting on Inter-linkages: Strategies for bridging problems and solutions in the further implementation of sustainable development*, 3-4 September 2001, Japan.

149 Brown, O., 2005: *The Environment and our Security: How our understanding of the links has changed*, a contribution to the International Conference on Environment, Peace and Dialogue among Civilizations, Tehran, Iran, May 9-10, 2005: 4.

150 This is an interpretation of a Figure from United Nations University Centre, 2001: *WSSD International Eminent Persons Meeting on Inter-linkages: Strategies for bridging problems and solutions in the further implementation of sustainable development*, September 3-4, 2001, Japan: 2.

conflict prevention is less politicized, it may also be easier to find a consensus here – except if Member State’s economic interests are at stake.

Over the years, there has been a shift, although not far enough, in the debate from environmental protection and conflict prevention as separate issues towards a convergence of them in the context of unequal access to resources, sustainability and efforts to address environmentally-induced conflicts.<sup>151</sup> In order to address the North-South differences of resource access, the General Assembly and the Security Council need to harmonize debates on how to achieve responsible and sustainable management of natural resources. In general, the ‘North’ must do more in assisting the ‘South’ to secure fair and equal access to resources and gain the possibility to protect their resources from exploitation and mismanagement, and in aiding in the prevention of conflict related to valuable resources.

#### *Engaging with civil society actors*

While the UN is distinct in its ability to take a lead in environment and conflict prevention initiatives, it also enjoys a unique position as mediator and facilitator among civil society actors with their diverse expertise and experience. Non-UN organizations and networks have targeted their research and projects on how to mainstream environmental resource management issues into conflict prevention measures and have been successful in organizing conferences, workshops and are producing reports and recommendations for future projects.<sup>152</sup> Within these circles, current debates on conflict prevention strategies that address environmental factors are concerned with the institutional influences and ‘network threats’ such as climate change, terrorism, and

epidemic diseases, which influence norms, values and behaviours and pose a potential threat to global security.<sup>153</sup> In order to anticipate such forces, projects are placing strong emphasis on ‘cooperation’ as an essential approach and priority requisite for addressing environmental conflicts. This encourages local, regional, national and international organizations, as well as the private sector, non-governmental organizations, and other civil society actors to work together through debate and dialogue to generate solutions that account for different needs and perspectives.<sup>154</sup> Some examples of existing measures which aim to address environment-related conflicts will be elaborated in part 3 of this report. In addition to the achievements of civil society actors, the global effects of environmental factors on conflicts call for the involvement of the UN, as an international governing body.

## Summary

The UN approach in linking environment and conflict prevention has resulted in a variety of conferences, resolutions and mandates for action. Despite an historical evolution in its activities, many UN problem solving techniques continue to maintain the topics of environment and conflict as separate entities and do not address them transversally. Moreover, existing institutional structures continue to impede effective conflict prevention from taking place due to their hierarchical decision-making processes. These limitations are linked to debates surrounding state sovereignty, the political will of the UN Security Council in preventing and responding to conflicts through intervention and the engagement of other actors such as civil

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151 See: Annex A for a list of various documents and events on the environment and conflict.

152 See: the Environmental Change and Security Program Reports. Forum & Exhibition on Environment, Conflict and Cooperation, March 2006. International Conference on Environment, Peace and Dialogue among Civilizations, May 2005. International Environmental Law Research Centre Activities.

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153 Brown, O., 2005: *The Environment and our Security: How our understanding of the links has changed*, A contribution to the International Conference on Environment, Peace and Dialogue among Civilizations, Tehran, Iran, May 9-10, 2005: 4.

154 See Environmental Change and Security Program, Woodrow Wilson International Center for Scholars, [http://www.wilsoncenter.org/index.cfm?topic\\_id=1413&fuseaction=topics.intro](http://www.wilsoncenter.org/index.cfm?topic_id=1413&fuseaction=topics.intro) (12.1.2008).

society groups. While obstacles and challenges remain, the potential to include the environmental factor in current conflict prevention programmes and policies is positive. In order to gain a stronger understanding of UN activities, the following section provides a brief analysis of UN units and the role they play in environmental conflict prevention.

## 2.2 The agencies of the UN system and their programmes

Brief profiles of some of the most relevant UN actors who are working on the topic of preventing environment-related conflicts are analyzed below according to their commitments and initiatives. While non-UN actors will not be the focus of this report, it is important to acknowledge that many undertakings are being spearheaded by them in the field of environmental and resource conflict prevention.<sup>155</sup>

The United Nations organizational chart presented on the next page allows the reader to understand how the different UN institutions are linked to one another.<sup>156</sup> The programmes that are engaged in issues related to environment and conflict to some extent have been highlighted in yellow, although not all of them have been expanded on.<sup>157</sup>

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155 Examples of such institutions include: Adelphi Research, International Institute for Sustainable Development, Woodrow Wilson International Center for Scholars, International Development Research Center, World Foundation for Environment and Development, Institute for Security Studies, Institute for Environmental Security, Global Witness and Organization for Economic Cooperation and Development.

156 The organizational chart is available on the UN website at:  
[http://www.un.org/aboutun/chart\\_en.pdf](http://www.un.org/aboutun/chart_en.pdf)  
(12.1.2008). The yellow highlights are author's emphasis.

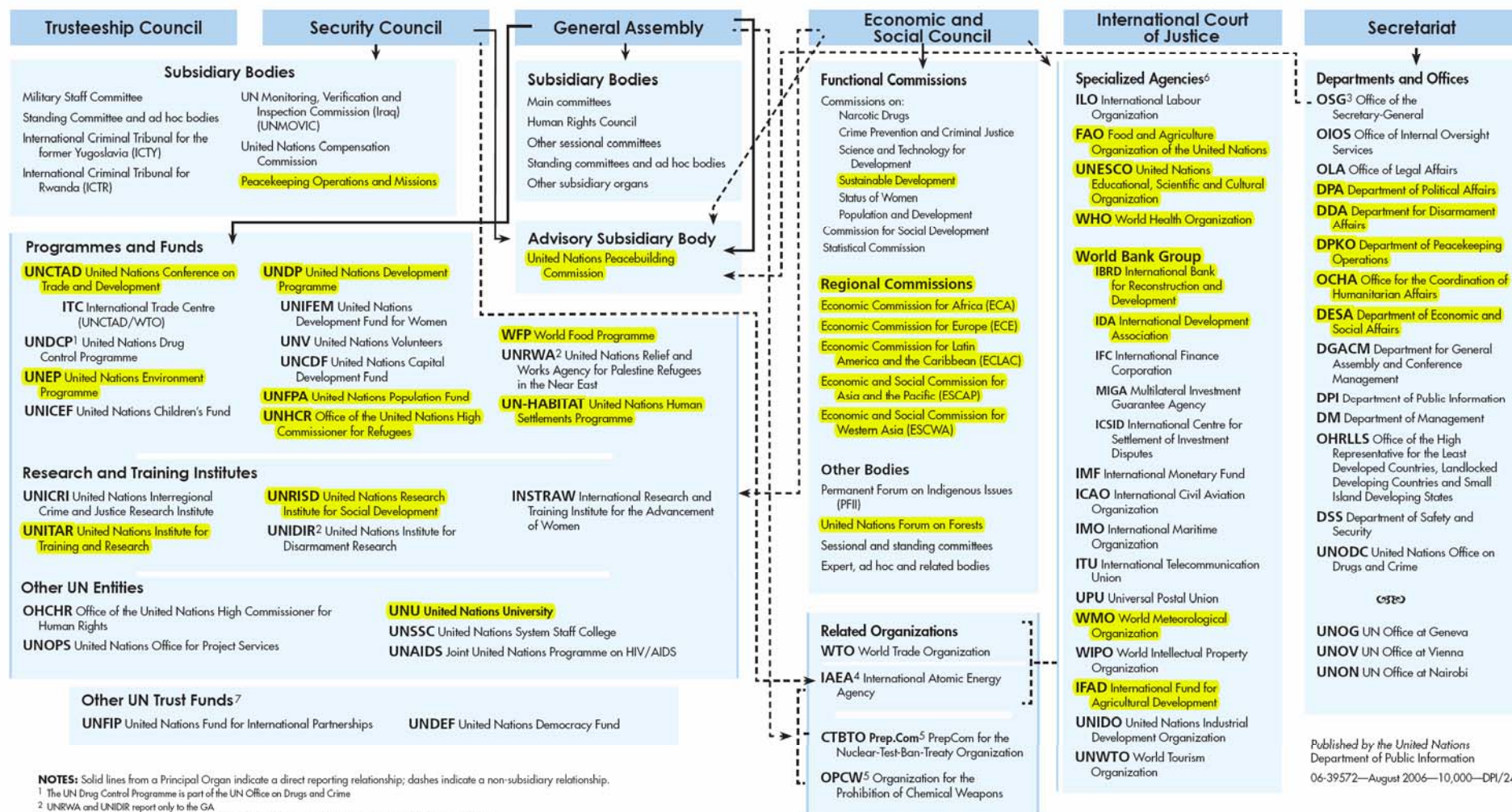
157 Other UN organizations involved in this field which have not been analyzed include: the Food and Agricultural Organization (FAO), UN Habitat, the World Meteorological Organization (WMO), the UN High Commissioner for Refugees (UNHCR),

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United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA), the UN International Strategy for Disaster Reduction (UNISDR), the UN World Food Programme (WFP), and the UN Educational Scientific and Cultural Organization (UNESCO).

# The United Nations System

## Principal Organs



**NOTES:** Solid lines from a Principal Organ indicate a direct reporting relationship; dashes indicate a non-subsidiary relationship.  
<sup>1</sup> The UN Drug Control Programme is part of the UN Office on Drugs and Crime.  
<sup>2</sup> UNRWA and UNIDIR report only to the GA.  
<sup>3</sup> The United Nations Ethics Office and the United Nations Ombudsman's Office report directly to the Secretary-General.  
<sup>4</sup> IAEA reports to the Security Council and the General Assembly (GA).  
<sup>5</sup> The CTBTO Prep. Com and OPCW report to the GA.  
<sup>6</sup> Specialized agencies are autonomous organizations working with the UN and each other through the coordinating machinery of the ECOSOC at the intergovernmental level, and through the Chief Executives Board for coordination (CEB) at the inter-secretariat level.  
<sup>7</sup> UNFIP is an autonomous trust fund operating under the leadership of the United Nations Deputy Secretary-General. UNDEF's advisory board recommends funding proposals for approval by the Secretary-General.

Figure 10: UN organizational chart © United Nations



### 2.2.1 Principal organs of the United Nations

The General Assembly, the Security Council and the Economic and Social Council (ECOSOC) of the UN are three principal organs for resolving conflicts with an environmental dimension as they can present resolutions and recommendations to Member States and other UN agencies. As overarching bodies, they can place an issue on the agenda in order to emphasize its relevance, and are influential in the international arena of summits and conferences.

#### *Secretary-General (SG) and Special Representatives of the Secretary-General (SRSG)*

The SG has a key role in creating awareness about the environmental dimensions of conflicts – as illustrated by various statements of SG Ban Ki-Moon.<sup>158</sup> A key problem of the UN system is the lack of coordination and cooperation between its various agencies. While the SG has the responsibility to contribute reform proposals<sup>159</sup> and prevent inter-agency tensions, such as between the DPKO and the DPA, this role remains more one of arbitration than coordination. Further, it only takes place when the DPKO and DPA cannot coordinate amongst themselves.

SRSGs aid the Secretary-General in overcoming some of the inflexibility of the various agencies. By putting a team together with conflict management and environmental experts, e.g., from the DPA and UNEP, SRSGs can make use of UN strengths and allow the organization to rise above some of its weaknesses when dealing with a specific case.

Due to the way that the United Nations was initially set up, early warning and prevention were not imperative issues beyond the occurrence of interstate war. Traditionally, responsibilities for early warning mechanisms are held by the SG, who reports to the SC about potential threats to global and local security through Article 99 of the UN Charter. In this spirit, “early warning is the act of alerting a recognized authority (such as the UN Security Council) to a new (or renewed) threat to the peace at a sufficiently early stage for that authority to attempt preventive action.”<sup>160</sup> Therefore, due to its security mandate, the Secretary-General is mostly involved in preventing escalated conflicts from escalating even further. However, it is not enough for the Secretary-General to make recommendations if they are not followed through with concrete action by UN bodies. UN organs and agencies will be outlined below to show what type of work they are undertaking.

#### *General Assembly*

The General Assembly represents the only UN body where all member states are present and maintain equal representation, making it a very important forum for new issues, discussions and debate. Moreover, the General Assembly reiterates that the primary responsibility of conflict prevention lies in the hands of national governments, making it crucial that assistance to national conflict prevention efforts responds to specific country problems and capacities.<sup>161</sup> The General Assembly has acknowledged the need to strengthen UN capacities to address environmental conflict more efficiently<sup>162</sup>, although, due to its broad agenda the environment continues to be a small item on the

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158 Moon, B. K., 2007: Statement at the Security Council debate on energy, security and climate, UN/DPI NGO, <http://www.undpi.org/index.php?name=News&file=article&sid=171> (12.1.2008).

159 See Secretary-General Documents: ST/SGB/1999/13, 6 Aug. 1999; A/RES/53/242, 10 Aug. 1999; A/54/1, 31 Aug. 1999; DPI/2110, 30 Mar. 2000; A/55/985, 7 June 2001; SG/SM/9197, 7 April 2004; A/59/565, 2 Dec. 2004; A/59/2005, 21 Mar. 2005; SG/SM/10696, 25 Oct. 2006.

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160 Dorn, A.W., 2004: *Early and Late Warning by the UN Secretary General*, in: Schnabel, A. and Carment, D.: *Conflict Prevention: From Rhetoric to Reality*, Volume 1, USA: Lexington Books: 317.

161 Thakur, R. and Schnabel, A., 2003: *Conflict Prevention, The Secretary General's Report: The Way Forwards*, Report of a UNU/EOSG Expert Forum, Tokyo: United Nations University: 4.

162 See: Annex A for significant documents and resolutions put forth predominantly by the Secretary-General and the General Assembly.

General Assembly's agenda and tends to be passed on to other programmes such as the UN Environment Programme. While the General Assembly recommends resolutions, approaches and international treaties, it could be more effective if it took a stronger position on conflict prevention with environmental factors and enjoyed better interaction with the Security Council and other programmes.<sup>163</sup>

### *UN Security Council*

There are intense debates about whether an issue such as the environment benefits from being raised to the level of the Security Council (SC). Sceptics argue that the politicization of a topic can lead to the overshadowing of its original goals and objectives. For example, in 2007, the UK effort to discuss the impact of climate change on peace and security with 55 member states backfired due to lack of support. The refusal of countries such as Russia and China to discuss climate change as a security issue demonstrated how the SC has the power of silencing and making an issue 'off limits' even before it has been seriously considered. Further, the UK was accused of attempting to bring unacceptable policy measures to the Security Council, an organ which should instead focus on addressing immediate breaches of peace and threats to security. Among other reasons, some developing countries opposed raising an economic or environmental topic to the SC for fear that environmental conditions would be set on their receipt of economic support, further hindering their development.

Nevertheless, resolutions of the Security Council (SC) have the potential to legitimize and support important conflict prevention measures. SC resolutions have, for example, supported initiatives such as the Kimberley Certification Process. So far, however, this forum has not been able to push other pertinent issues, such as climate change or norms to deal with conflicts characterized by the resource curse other than over diamonds. Although there is a significant

number of instruments, policies and resolutions that aim to prevent and respond to conflicts with an environmental factor: "...There is, as yet, no direct UN doctrine with effective enforcement powers to address these sources of non-military causes of environmental security threats that could lead to conflict"<sup>164</sup>. The UN Security Council secures a significant amount of authority and power through its resolutions on peace and security issues. Its measures and concern are usually limited to emergency and crisis situations, thereby focusing on operational prevention tactics and 'hot spot' conflicts. The Security Council's emphasis on due attention and response only after a conflict has escalated has led to the criticism that the UN is often doing 'too little, too late', missing out on opportunities for early prevention.<sup>165</sup>

The Security Council needs to acknowledge that misuse of the environment poses a threat to security. Thus far, the majority of the environment, peace and security resolutions have come from the Secretary-General and the General Assembly, and not from the Security Council, which is the only body holding the power to issue binding decisions. As outlined in part 1 of this study, Secretary-General Ban Ki-Moon has recently argued that the current conflict in Darfur, Sudan can be traced back to environmental root causes.<sup>166</sup> On the one hand, it can be argued that this is a good evolution, as conflicts related to environmental issues are receiving more attention from the UN, making it easier for a country to accept UN involvement if there is a global, environmental dimension to a

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163 See: UN Charter Articles 10-14, Available: <http://www.un.org/aboutun/charter/> (12.1.2008).

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164 Sills, J.B. et al., 1999: *Environmental Security: UN Doctrine for Managing Environmental Issues in Military Action*, Executive Summary, AC/UNU Millennium Project, <http://www.acunu.org/millennium/es-un.html> (12.1.2008).

165 Griffiths-Fulton, L., 2001: *The UN and conflict prevention: from rhetoric to concrete action*, The Ploughshares Monitor September 2001, 22(3): 3.

166 Moon, B.K., 2007: *A climate culprit in Darfur*, The Washington Post, June 16, 2007, Page A15, <http://www.washingtonpost.com/wp-dyn/content/article/2007/06/15/AR2007061501857.html> (12.1.2008).

crisis. On the other hand, Ban Ki-Moon's statements can be understood to de-politicize the Sudan conflict, downplaying the role and responsibility of the Government of Sudan in evolving conflict dynamics.

### 2.2.2 Advisory subsidiary body

#### *UN Peacebuilding Commission*

The Peacebuilding Commission was created in December 2005 on the recommendation of the Secretary-General, the UN Security Council and the General Assembly to focus beyond peacemaking and towards post-conflict peacebuilding initiatives. It represents the need for the UN to concentrate on and shoulder post-conflict societies which are vulnerable to a relapse into conflict. The Commission fulfils that role by facilitating dialogue, initiating post-conflict programmes and encouraging institutions and countries to finance long-term, sustainable projects.

The Commission is still in its early steps of institutionalization; therefore much is yet to be accomplished in its efforts in supporting long-term post-conflict reconstruction, structural prevention and recovery in countries emerging from conflict. Currently it aims to close the 'relief' to 'development' gap<sup>167</sup> between all national and international actors who are involved in international peacebuilding processes by coordinating their efforts. This would require that Programmes, Funds, Specialized Agencies as well as the UN Departments of Peacekeeping Operations (DPKO) and Political Affairs (DPA) are brought together in project work. This is a necessary, but challenging process. The Commission aims to provide cooperation and coherence amongst different actors as an advisory body with a direct reporting relationship to the General Assembly and the Security Council. It has not been created to conduct any direct intervention itself. The

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167 Atwood, D. and Tanner, F., 2007: *The UN Peacebuilding Commission and International Geneva*, Disarmament Forum: *The Peacebuilding Commission*, 2: 27 - 36.

ambitious mandate of the Peacebuilding Commission appears, at least on paper, as suitable responses to many problems of peacekeeping and peacebuilding within the United Nations. Yet, it can be argued that it has been commissioned with too many responsibilities and goals, and with few resources and a lack of long-term plans on how to achieve them.<sup>168</sup> While the Commission has a mandate to aid countries that are recovering in preventing a relapse into conflict, its goal is not implicitly preventive in all phases of a conflict but focuses on the post-conflict environment. Currently, Burundi and Sierra Leone are the two countries being funded by the Commission's Peacebuilding Fund of USD 35 million per country investment. Further, Liberia has become the first country to be eligible for USD 15 million under the second window of the Commission, and Guinea-Bissau received approval in April 2008 for a funding envelope of USD 6 million. Other countries currently under review include Nepal and the Central African Republic. For the time being, the focus has been on achieving post-conflict reconstruction in these countries, without any specific environmental element being considered.<sup>169</sup> However, the potential role of the Peacebuilding Support Office (PBSO) in integrating the sustainable use of natural resources into its analytical tools and peacebuilding strategies in post-conflict countries is promising.

### 2.2.3 Secretariat Departments and Offices

#### *UN Department of Political Affairs (DPA)*

The UN Department of Political Affairs (DPA) is part of the UN Secretariat and provides substantive and secretariat support to the UN Security Council. It is furthermore the focal point on conflict prevention, committed to

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168 Atwood, D. and Tanner, F., 2007: *The UN Peacebuilding Commission and International Geneva*, Disarmament Forum: *The Peacebuilding Commission*, 2: 27 - 36.

169 Geneva Centre for Security Policy, 2007: *Peacebuilding in Africa Public Discussion*, Geneva Centre for Security Policy, Geneva, Switzerland, 15 May 2007.

mainstreaming preventive thinking and action throughout the UN system. The DPA is responsible for ensuring conflict prevention by coordinating early warning and preventive action responses, maintaining current information on international situations and potential conflicts, working together with the Secretary-General, his special envoys and political missions through preventive diplomacy, and working with other UN, international and regional organizations and non-state actors. While its focus lies on strengthening institutions, capacities and cooperation between the UN and civil society, none of its programmes appear to link conflict prevention and peacebuilding methods specifically to environmental issues.<sup>170</sup>

In the 'Prevention of Armed Conflict Report', former Secretary-General Kofi Annan called on the DPA "to use the Trust Fund for Preventive Action to support the fact-finding and facilitation missions and other activities aimed at defusing potential conflicts and preventing existing disputes from escalating into conflicts."<sup>171</sup> Such a recommendation was made in order to strengthen the UN Trust Fund of Preventive Action by linking conflict prevention to development initiatives, which is a recurring recommendation of the UN. However, as the DPA's own budget for peacemaking and preventive diplomacy has apparently not kept up with its mandate, its activities have been a disappointment to the greater UN system.<sup>172</sup> The DPA's focal point on conflict prevention

Table 2: The UN Department of Political Affairs: Non-violent Preventive Action within the UN System

Conflict Prevention measure	Implementing body
Early warning systems to identify potential crises	UN tools such as the UNEP GRID Database; Member states and regional organizations
Timely and accurate advice to the Secretary-General	Partnerships with UN programs and agencies, and non-UN organizations
Mediation/negotiation	UN legislative bodies (Security Council, General Assembly)
Public statements and reports	UN Secretary-General and his/her good offices
Factfinding, goodwill and other missions	Secretary-General for political missions
Political guidance and support to special representatives and other senior officials	UN Secretary-General for political missions, peacebuilding offices and the legislative bodies (Security Council, General Assembly)
Electoral, technical and support assistance of national institutions	UN legislative bodies, regional organizations and NGOs, civil society and media

identifies key measures and implementing bodies in preventing conflict without the use of force

170 Boothby, D. and D'Angelo, G., 2004: *Building Capacity within the UN: Cooperation on the Prevention of Violent Conflicts*, in: Schnabel, A. and Carment, D. (eds.): *Conflict Prevention from Rhetoric to Reality: Organizations and Institutions*, Lanham, Maryland: Lexington Books.

171 Annan, K., 2001: *Prevention of armed conflict*, Report of the Secretary-General, A/55/985 S/2001/574, United Nations, June 7, 2001. <http://www.undp.org/cpr/documents/prevention/SG%20report%20on%20prevention%20of%20armed%20conflict.pdf> (12.1.2008).

172 Department of Political Affairs, 2007: *DPA's Budget and Trust Fund*, United Nations, <http://www.un.org/depts/dpa/budget.html> (12.1.2008).

(table 2).<sup>173</sup> Providing a general overview of preventive action, environmental issues would play a role in each of them. The yearly expert training programme on ‘Coping with non-traditional security threats’ (organized by the DPA together with the Geneva Centre for Security Policy – GCSP), which has included war economies and natural resource conflicts – particularly ‘blood diamonds’ – as one of their reoccurring topics. In following such a positive initiative, it would be important to offer such training to other officers who are preparing for deployment to field missions. The Mediation Support Unit (MSU) of the DPA is an important source of information and lessons learned. It should explore how to integrate the environmental security dimension into mediation support. The MSU can give support to the SRSGs in dealing with ‘conflict hot spots’, based on lessons from other peace processes. However, this requires the SRSGs to be open to learning and taking such advice, which depends very much on the personality of the SRSG appointed. The UNDP BCPR<sup>174</sup> seeks to help countries prevent and recover from armed conflicts through a package of conflict-sensitive development approaches – it is not quite clear to which degree they have also integrated environmental considerations.

In summary, the DPA has a central role in operational conflict prevention and in monitoring the type and location of conflicts that need to be addressed (e.g., such as through its ‘Inter-Departmental Framework for Co-ordination on Early Warning and Early Action’). Nevertheless, it still lacks expertise concerning the environmental dimensions. Rather than improperly ‘mainstreaming’ the environment in such a way as to tag it on as an additional topic (as was done with gender issues in the case of UNIFEM), the topic should be integrated within the existing DPA structure, e.g., through training and the development of relevant experts.

DPA staff, for example, could be trained on how to carry out “Political environmental analysis”. This would entail taking into consideration environmental aspects that could escalate or appease a conflict when conducting conflict analyses.

#### *Department of Peacekeeping Operations (DPKO)*

The DPKO is important in operational conflict prevention. A key challenge for the DPKO is how to deploy its peacekeeping troops in an environmentally-sensitive manner (“do no harm”), so as not to cause damage that could aggravate conflicts in the future.<sup>175</sup> At the moment most peacekeeping is done on shoestring budgets, with few resources available to prevent environmental degradation. The challenge of providing water for troops in arid climates, or how to deal with waste in an ecologically fragile area is enormous. A decision-support system providing quick information prior to deployment would complement the more in-depth UNEP post-conflict assessments, which are very good but come too late to be of use in the field. Better assistance for humanitarian agencies already in the conflict regions assisting the DPKO deployment would be also useful. DPKO should also explore how to better ensure the implementation of resource-related sanctions.

DPKO training programmes are important venues for knowledge and experience sharing as they are already well established and staffed with – as well as targeted at – experts from diverse fields and backgrounds. For instance, UN peacekeepers are trained prior to and during deployment on issues such as human rights education, law enforcement, elections, refugees or gender mainstreaming, etc. However, they are not trained on how to deploy in an environmentally-sensitive manner so to avoid environmental damage that could lead to future conflicts. The absence of the environment in

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173 Griffiths-Fulton, L., 2001: *The UN and conflict prevention: from rhetoric to concrete action*, The Ploughshares Monitor, September 2001: 22(3): 6.

174 See: <http://www.undp.org/cpr/> (12.1.2008).

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175 An internal DPKO “Do no harm” is in the making, interview with DPKO staff, S. Mason, V. Mauer, New York, November 6, 2008.

such training programmes seems to assume that peace is seen as a prerequisite to environmental sustainability. Further, while peacekeepers receive extensive training on conflict management, they acquire little on how to prevent conflict in the first place.<sup>176</sup> It would therefore be important for the DPKO and others involved in peacekeeping training (such as the various institutions that are members of the International Association of Peacekeeping Training Centers) to establish environmental mainstreaming units to ensure that peacekeepers are provided information on how the environment can cause, perpetuate but also resolve a conflict. The UN Environment Programme and the Department of Political Affairs would be important partners in such a task and could aid in the development of pre-conflict training, in addition to their already established post-conflict training.

#### 2.2.4 Programmes and funds

As the implementing bodies of the UN, the Programmes and Funds report directly to, and often have their mandates and major issue areas decided by, the Principal Organs (e.g. the Security Council and the General Assembly). However it is questionable whether their experiences, feedback and lessons learned on the ground are communicated back to the Principal Organs. This knowledge sharing gap prevents systematic adjustments of original and future mandates. Although outside the scope of this Report, it would be interesting to analyze this relationship further to understand whether the programmes have the power to influence UN agenda setting and if so, how.

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176 Human Rights Professionals, 2004-2007: *Directory of English Language Web-Based Training Materials for Human Rights Field Officer*, Links to Training Resources, [http://www.humanrightspersonals.org/index.php?option=com\\_content&task=view&id=19&Itemid=35](http://www.humanrightspersonals.org/index.php?option=com_content&task=view&id=19&Itemid=35) (12.1.2008).

#### *UN Development Group (UNDG)*<sup>177</sup>

The UNDG is an umbrella of some 28 UN units, including UNDP, UNFPA, UNICEF, WFP, and UNEP, formed by the Secretary-General in 1997 to increase the effectiveness of UN development work at the country level. The aim is to develop joint policies and procedures to increase cooperation and impact of member agencies. The UNDG can set guidelines for integrating conflict prevention and the environment for the country teams, thus having a “trickle down” effect on its member agencies and on the country teams. This may have a much more concrete impact than trying to push measures at the SC level (too high up), or within individual UN units (too far down). Following a review of the Post-Conflict Needs Assessment (PCNA) process in 2006, environment was identified as a lacking topic, and added in the revised PCNA version.

UNEP and UNDP cooperate well with each other as they are both members of the UNDG. In a Memorandum of Understanding they have confirmed their willingness to work together on topics such as poverty and environment. A similar set-up could help cooperation between UNDG members such as UNEP and UNDP and other UN units, such as DPA and DPKO, when dealing with specific dimensions of environment-related conflicts.

Further, the Development Group Office (DGO) analyzes country cases, encourages cooperation between member states, and is responsible for selecting and supporting Resident Coordinators. The latter can play an important role in advocating for an inclusion of the environmental factor into UN country team coordination and training.

#### *UN Development Programme (UNDP)*

The UNDP has expertise in managing development and reconstruction programs, which are essential to many of the measures needed to prevent environment-related conflicts. The nexus between the environment, conflicts,

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177 <http://www.undg.org/> (12.1.2008).

and development that UNDP can address is especially relevant for local and regional resource-scarcity conflicts. Efforts to assist riparian states of shared river basins in setting up international river basin commissions, for instance, are important steps in counteracting unilateral development approaches and mitigating international tensions.

The UNDP's BCPR – the political arm of UNDP – provides a relevant and specific focus on preventing armed conflicts and reducing the impact of disasters – which are often environmentally related – and promoting early recovery in a post-crisis situation. The main aim of BCPR is to build capacity on the local and institutional level, instead of overemphasizing the role of (often expensive) experts and mediators. They work on long-term conflict prevention by building up local mediation expertise and skills, focusing on conflicts related to land titles, local water and land issues. Past cases include Central Niger, N. Uganda, Kenya, Fiji and South Sudan (in the latter case land commissions related to the Comprehensive Peace Agreement).

There is a strong focus on projects that foster dialogue at the grass-roots level and support ways of institutionalizing such dialogue outcomes. UNDP BCPR published a book on “Democratic Dialogue”, jointly with CIDA, IDEA, OAS (Organization of American States).<sup>178</sup> Such approaches are vital to increasing direct participation of people affected by changes in environmental use. Direct participation is one key step in preventing conflict. The challenge for UNDP, however, is the tendency to be biased towards the state – as it is made up of member states. Consequently, when UNDP itself tries to foster dialogue between civil society, grass-root communities and the state, there is a danger (or the fear thereof) that it will favour the state when pushed to take position. This could be avoided if

in such situations UNDP would partner up with other, non-UN and non-State third parties.

In 2005, UNDP launched the Strengthening National Capacities for Conflict Prevention and Conflict Transformation project, which promotes local governance capacity building initiatives to ensure peace. In order to facilitate conflict prevention, disaster relief and early recovery, the BCPR conducts needs assessments, capacity development, coordinated planning, and policy and standard setting.<sup>179</sup> The links between different types of conflict appear to be segregated in the crisis prevention and recovery efforts of the programme. The UNDP is also involved in other inter-organizational projects such as the Environment and Security programme (ENVSEC), mentioned in the following sections.

#### *UN Environment Programme (UNEP)*

UNEP has the technical know-how to acquire and assess environmental data that is central in dealing with environment-related conflicts. Since 1999, UNEP has conducted post-conflict environmental assessments to understand environmental damages from conflicts and the risks to human health, livelihoods and security. As a follow-up to the assessments, UNEP has worked within UN country teams to strengthen national environmental management capacities through institution building, promoting regional cooperation, providing technical and legal assistance, and integrating environmental concerns in reconstruction programmes.<sup>180</sup> To date, operations have been conducted in 15 post-conflict counties, including major programmes in Sudan, Liberia, Afghanistan, Iraq, the Occupied Palestinian Territories, and Lebanon. In February 2008, UNEP's Governing Council endorsed a proposal to broaden the scope of

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178 Pruitt, b. and Thomas P. 2007 Democratic Dialogue – a Handbook for Practitioners. IDEA, CIDA, OAS, UNDP <http://www.democraticdialoguenetwork.org/>

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179 UNDP, Conflict Prevention, Bureau for Crisis Prevention and Recovery, [http://www.undp.org/cpr/we\\_do/conflict\\_prevention.shtml](http://www.undp.org/cpr/we_do/conflict_prevention.shtml) (12.1.2008).

180 UNEP: Post Conflict Branch, [http://www.unep.org/DEPI/programmes/post\\_conflict\\_assessment.html](http://www.unep.org/DEPI/programmes/post_conflict_assessment.html) (12.1.2008).

UNEP's conflict portfolio to cover all conflict phases. New areas of work will include conducting assessments on how environment and natural resources contribute to conflict as well how they could directly contribute to peacebuilding, providing analyses to DPA to be used as inputs in peace negotiations and mediation (e.g. on wealth sharing, resource scarcity, livelihoods), and facilitating dialogue and technical cooperation within or between conflict affected countries on natural resources and environmental issues (known as environmental diplomacy). As of 2010, addressing both the environmental causes and consequences of conflicts and disasters will become one of the six strategies priorities of the organization with initial budget aspirations of USD 50 million per year (depending on need and demand).

UNEP's existing capacities to address the environmental dimensions of conflicts are divided into three main entities. These include the Post-Conflict and Disaster Management Branch (PCDMB)<sup>181</sup>; the Division of Early Warning and Assessment (DEWA); and the Environment and Security Initiative (ENVSEC)<sup>182</sup>. At the same time, other UNEP projects and activities also indirectly touch on the subject. These include technical inputs to the Intergovernmental Panel on Climate Change (IPCC); UNEP/GEF Medium Size Projects (MSP); National Capacity Self-Assessment Project (NCSA) in 12 African countries; the Africa Environment Outlook (AEO-2); the Action Plan for NEPAD Environment Initiative; the Africa Environment Information Network (AEIN); and the Environmental Diplomacy Training Programme.

UNEP's Post-Conflict and Disaster Management Branch has been the center of

gravity for field level post-conflict assessments and follow-up operations. Since 2008, UNEP PCDMB has established a technical partnership with the UN Peacebuilding Commission Support Office (PBSO) on "Environment, Conflict and Peacebuilding" (ECP). The partnership has seconded a UNEP expert to the PBSO to act as a focal point for addressing natural resources and environmental issues and to organize a community of practice. At the same time, UNEP has established an Expert Advisory Group to provide strategic advice, policy guidance and other expertise on addressing environment and natural resources issues in conflict affected countries as well as within UN policies and programmes. UNEP and the Expert Advisory Group are currently working on a policy justification on the linkages between conflict, environment and peacebuilding in terms of drivers, impacts, risks and opportunities. An analytical toolkit for UN country teams is also being developed on how to assess and address linkages between environment and conflict. Finally, UNEP PCDMB is also in the process of developing "Environmental Diplomacy" interventions which aim to use the shared management of the environment and its natural resources as a platform for cooperation in countries or regions affected by or vulnerable to conflict. For example, UNEP has attempted to combine environmental expertise with political 'facilitation' skills in order to support international confidence-building in projects between Afghanistan and Iran. UNEP provided the parties with comprehensive data on environmental change in the shared Sistan basin, on the basis of a systematic analysis of satellite images, and organized a series of meetings which fostered technical cooperation between experts from the two countries. Similar meetings have been organized between the environmental administrations of Iran and Iraq, south and north Sudan, and Israel and the Palestinian Authority.<sup>183</sup> UNEP's main role is at the technical level, using environment as a bridge for cooperation and confidence building. It also

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181 UNEP, The Post-Conflict and Disaster Management Branch, <http://postconflict.unep.ch/index.php?show=current> (12.1.2008).

182 The ENVSEC initiative is outlined in the Inter-agency cooperation Initiatives section and in part 3 of this Report.

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183 Silja Halle (UNEP), in an email to Simon Mason, November 19, 2007.



plans to use ‘environmental diplomats’, e.g. former environmental ministers, to lead or support mediation processes, in partnership with other lead agencies such as UNDP or DPA.

UNEP’s new partnership model with PBSO offers promise for other partnerships on conflict prevention. In particular UNEP could play a lead technical role within the UN Interagency Framework for Coordination on Preventive Action (or Framework Team) and the related Expert Reference Group (ERG). Opportunities may also exist for UNEP to systematically provide environment and conflict analysis to the CCA, UNDAF and PCNA processes.<sup>184</sup>

In terms of piloting environment and conflict prevention initiatives, since 2002, UNEP’s Regional Office for Europe has worked in partnership with UNDP and OSCE to address environment and security issues within the European region. The “Environmental Security Initiative” is described in detail in section 2.2.6.

UNEP’s Division of Early Warning and Assessment (DEWA) is responsible for monitoring, analyzing and researching information on the state of the global environment, the assessment of global and regional environmental trends, and early warning signals of environmental threats. Reports are provided to policy and decision makers to aid them in their planning of projects on sustainable human development.<sup>185</sup> DEWA also manages UNEP’s Global Resource Database (GRID), which is a network that provides early warning updates, assessments and pushes for effective knowledge transfer. More recently, DEWA has been working together with African

heads of State, New Partnership for Africa’s Development (NEPAD), experts and government representatives in order to integrate environmental management into peacebuilding initiatives in the Great Lakes Region of Africa.<sup>186</sup>

DEWA’s collaboration with the Environmental Change and Security Project (ECSP) at the Woodrow Wilson International Center for Scholars in Washington, DC led to the report ‘Understanding Environment, Conflict and Cooperation’, which outlined theoretical debates, cross-country case studies and institutional recommendations for a stronger understanding of the issues within the UN family and other organizations.<sup>187</sup> Generally, it promotes the use of cooperation as a tool for conflict prevention and awareness and assesses the obstacles that inhibit actors from responding adequately to programme deficiencies within and outside the UN. Discussions are currently on-going within UNEP on how DEWA’s analysis of environmental trends could also support the conflict early warning needs of the wider UN system.

While UNEP-UNDP cooperation seems to function, more efforts are needed to collaborate with DPA. The model of “Peace and Development Advisors (PDAs)” has been used to bring together UNDP and DPA expertise to explore the link between development and conflict at an early stage. If UNEP could be included in such PDA teams, the potential that environmental factors would be recognized in conflict prevention would increase.

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184 UNEP, Environment, Conflict and Peacebuilding Expert Advisory Group, Meeting Summary, New York, 11-12 February 2008.

185 [http://www.envirosecurity.org/ges/GFSP\\_WGA\\_DiscussionPaper-vers1-13Oct06.pdf](http://www.envirosecurity.org/ges/GFSP_WGA_DiscussionPaper-vers1-13Oct06.pdf) (12.1.2008) and Brauch, H.G., 2005: *Environment and Human Security: Towards Freedom from Hazard Impacts*, InterSecTions, Publication of the United Nations University Institute for Environment and Human Security, No.2: 19.

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186 Kameri-Mbote, P., 2007: *Conflict and Cooperation: Making the Case for Environmental Pathways to Peacebuilding in the Great Lakes Region*, in: Woodrow Wilson International Center for Scholars: *Environmental Change and Security Program Report 2006-2007*, Washington: Environmental Change and Security Program, Issue 12:52-53.

187 UN Environment Programme, 2004: *Understanding Environment, Conflict and Cooperation*, Division of Early Warning and Assessment (DEWA), United Nations Environment Programme: 8, <http://www.wilsoncenter.org/topics/pubs/unep.pdf> (12.1.2008).

In order for UNEP to be most effective, it requires a mandate for action that can be implemented through an invitation by other UN units (e.g. DPA), or at the formal request of member states. Without a mandate, it is extremely difficult for UNEP to link the environment to conflict prevention as it is important that their legitimacy is recognized by member states where they are conducting their activities.

#### *UN Department of Economic and Social Affairs (DESA)*

The Department of Economic and Social Affairs (DESA) focuses on the establishment of development policies related to social well-being, poverty reduction and economic progress. It is particularly involved in supporting the implementation of internationally agreed goals such as the Millennium Development Goals (MDGs). In order to support Resident Coordinators within Country Teams on dealing with the interlinkages between conflict prevention, development, and peacebuilding, DESA has facilitated the creation of the UN Interdepartmental Framework for Coordination on Early Warning and Preventive Action (or Framework Team) and the related Expert Reference Group (ERG). By using experts who can provide sound, technical advice to the Resident Coordinators and Country Teams, DESA fills an important coordination gap that would be critical if the UNEP Environment, Conflict and Peacebuilding (ECP) would be implemented. Moreover, DESA has worked together with ECOSOC Ad Hoc Advisory Groups in order to integrate sustainable development principles into developing strategies of countries that have experienced conflict, particularly in Africa. There is continuous debate in the development of their Strategic Framework on Peacebuilding, which provides some food for thought.

#### *Food and Agriculture Organization (FAO)*

Similar to the UNDP, the role of the FAO is central to the direct use type of conflicts that are related to food, water and land security. The FAO uses two main approaches to its activities:

it deals with trends and factors (e.g., food security) that could escalate such direct use conflicts, and it also develops training approaches that seek to deal with conflicts over natural resources in a participatory manner. The FAO focuses on the role of community based organizations in promoting sustainable initiatives, in order to effectively address conflicts while remaining loyal to its priorities.<sup>188</sup> One key challenge, therefore, is how to link the grassroots level of conflict management with the political level of the central state. Only if this link is established, will conflict management efforts at the community level be sustainable and embedded in the evolving political context of the country. Once more, there is a danger of depoliticizing conflicts if this 'vertical' link between the grassroots level and the central state is ignored.<sup>189</sup>

#### 2.2.5 UN Economic and Social Council (ECOSOC) – regional commissions

All of the UN Regional Commissions feature a department that deals with environment and sustainable development, with a focus on how they are linked to economic concerns. Most of their programmes are research-based or look at environmental impact assessments. Few focus on linking the environmental programmes to conflict prevention. Unlike the other Regional Commissions<sup>190</sup>, the UN Economic and Social Commission for Western Asia (ESCWA) has a sub-programme aimed directly at the issue of Emerging and Conflict Related Issues (ECRI).

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188 FAO Conflict Management, <http://www.fao.org/forestry/site/conflict/en/> (12.1.2008).

189 See for example: Hagmann, T., 2006: *Pastoral Conflict and Resource Management in Ethiopia's Somali Region*, PhD Thesis, University of Lausanne, Switzerland.

190 These include the: Economic Commission for Africa (ECA), Economic Commission for Europe (ECE), Economic Commission for Latin America and the Caribbean (ECLAC), Economic and Social Commission for Asia and the Pacific (ESCAP), and the Economic and Social Commission for Western Asia (ESCWA).

As part of this sub-programme, ESCWA has been involved in the Replanting Trees Programme in Palestine, to help create long-term employment for Palestinian farmers and promote awareness on environmental preservation.<sup>191</sup> Another project, the ESCWA Smart Community Project for Iraq takes a multi-level approach to community building, which includes the development of an agro-food processing unit (AFPU), water treatment facilities and solar energy for water heating. ESCWA is also involved in developing a regional mechanism for building capacity to manage shared water resources, seeking to build relations between its member states.<sup>192</sup> Such initiatives support efforts in meeting food safety standards and ensuring food security in an unstable region.<sup>193</sup>

#### 2.2.6 Inter-agency cooperation initiatives

##### *Environment and Security Programme (ENVSEC)*

Increased call for assistance to tackle environmental problems with a link to security risks led to the establishment of the Environment and Security Initiative (ENVSEC) in 2002. The Initiative was built on the combined capacity and expertise of the Organization for Security and Co-operation in Europe (OSCE), the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP). Soon after the Initiative was established, the North Atlantic Treaty

Organization (NATO) became an associated partner, and in 2006 the United Nations Economic Commission for Europe (UNECE) and the Regional Environment Center for Central and Eastern Europe (REC) joined the Initiative as full partners. The purpose of the ENVSEC Initiative is to provide multi-stakeholder based analysis of environment and security risks and support a process whereby the identified risks are systematically addressed through strengthening national and regional capacities, institutions and cooperation. Working in close collaboration with national Ministries of the Environment and Foreign Affairs as well as with many other local partners, ENVSEC today operates in 20 countries in South Eastern and Eastern Europe, the South Caucasus and Central Asia.<sup>194</sup> In South Eastern Europe and Central Asia, the growing scarcity and degradation of natural resources, the vulnerability of the new states, the unequal access to valuable resources and the trans-boundary movement of hazardous materials are placing the region in risk of conflict. Created in order to build a roadmap of how the links between natural resources and social stability can bring together decision makers with environment and security experts, the Initiative conducts desk and field assessments with the help of regional partners and workshops, then provides regional analyses to politicians and persons at risk in order to promote awareness, build capacities and strengthen local institutions. Specifically, the Programme conducts comprehensive assessments to determine the impact of activities such as mining, water pollution, and ecosystem management. Further, capacity-building projects, effective management practices, and new cooperative strategies are emphasized to combat problems and avoid conflict.

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191 <http://www.escwa.org.lb/divisions/ecrprojects.asp?id=10> (12.1.2008) and [http://www.apnature.org/Project01\\_project.html](http://www.apnature.org/Project01_project.html) (12.1.2008).

192 ESCWA, 2006: *Establishment of a Regional Mechanism for Building Capacity to manage Shared Water Resources*, <http://www.escwa.org.lb/divisions/events/water/main.asp> (12.1.2008).

193 ESCWA, 2006: *Establishment of a Regional Mechanism for Building Capacity to manage Shared Water Resources*, <http://www.escwa.org.lb/divisions/events/water/main.asp> (12.1.2008).

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194 Environment and Security Initiative, 2006: *The Environment and Security Initiative: An International partnership for managing conflict and risk*, Progress Report 2006, <http://www.envsec.org/docs/ENVSEC%20Progress%20Report%202006.pdf> (12.1.2008).

However, the ENVSEC Programme has been geographically limited to working on environment-related conflicts only in Europe and Central Asia. Moreover, while many of its projects include environmental assessments, few of them practice continuous conflict prevention methods as they focus their methodology on training, assessment and rehabilitation. They perceive the 'environment' as a uniting factor between different regional, country and local groups who are committed to environmental assessments and peacebuilding measures.

### 2.2.7 Specialized agencies

Although the specialized agencies are distinct in size and scope, they all report first through the Economic and Social Council, and then to the General Assembly. The lack of a direct reporting relationship ensures that they retain more freedom from the General Assembly in their decision-making process on the one hand, but that it takes longer to discuss, approve or reject their suggestions on the other.

#### *UNESCO*

Within the UN's World Water Assessment Programme which works to identify and resolve the key challenges in water security, UNESCO's From Potential Conflict to Co-operation Potential (PCCP) looks specifically at how to share water resources, promote cooperation and prevent conflict from occurring.<sup>195</sup> Moreover, it takes more of a government perspective to initiate policies and conflict prevention tools for the future. Its programmes that deal with water will be mentioned in the section on direct resource conflicts and the UN.

#### *World Bank*

After increased criticism of its practices and projects that contributed to environmental degradation in the 1980s, the World Bank (WB) strongly influenced the creation of the Global

Environmental Facility (GEF) in 1990. The GEF was to work as a funding agency for development projects with an environmental dimension. Despite intentions to provide a venue for developing countries to gain access to 'Green projects', the GEF was heavily criticized for failing to establish strong guidelines and criteria in their selection process, and for continuing to focus on the 'Northern' perspective and opinion for development instead of those of the 'Southern' partners and beneficiaries. In order to curb criticism and balance the inequality in the decision-making process, the GEF underwent a serious restructuring process in the late 1990s, creating two departments, the Assembly and the Governing Council. GEF is currently being used more effectively by local as well as international organizations concerned with environmental preservation projects. Whether or not it is possible for the GEF to be used in areas prone to environment-related conflicts despite a stronghold of the World Bank, is debatable.

The World Bank has been criticized for its sectoral approach to development, which does not take into account different systems and themes within a comprehensive framework, but rather tends to look at each issue independently.<sup>196</sup> Despite such criticism, the World Bank has developed a Conflict Analysis Framework (CAF), which attempts to break down the potential causes of conflict in order to ensure in-depth understanding and comprehensive development interventions. The CAF has highlighted six major factors that affect proneness to conflict: social and ethnic relations; governance and political institutions; human rights and security; economic structure and performance; environment and natural resources; and external factors.<sup>197</sup> The

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195 From Potential Conflict to Co-operation Potential, <http://www.unesco.org/water/wwap/pccp/about.shtml> (12.1.2008).

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196 Payne, R.A., 1998: *The Limits and Promise of Environmental Conflict Prevention: The Case of the GEF*, Journal of Peace Research, 35(3), Special Issue on Environmental Conflict, May, 1998: 363-380.

197 World Bank, 2002: *The Conflict Analysis Framework (CAF) Identifying Conflict-related Obstacles to Development*, Social Development Department, Dissemination Notes, October 2002, No. 5

environment and natural resources factor requires an analysis of the availability of natural resources, access to natural resources (including land) and in-country and cross-border competition over natural resources. The World Bank is also spearheading the Conflict Prevention and Reconstruction (CPR) Unit which has been involved in publications related to conflict and natural resources.<sup>198</sup> Despite this promising title, the unit focuses predominantly on post-conflict reconstruction and rehabilitation interventions, while neglecting prevention activities,<sup>199</sup> and it does not work explicitly on environmental issues.

### 2.2.8 Research and training institutes

#### *UNITAR*

Encouraged by the World Foundation for Environment and Development (WFED) in 1991, UNITAR was responsible for convening a meeting of experts on organizing workshops and projects on environment and development-related negotiations. Mostly engaged in research, they have published a study on environmental conflict prevention, outlining a number of criteria that are necessary to take into consideration when dealing with international environmental conflicts (IECs).<sup>200</sup> For example, they advocate the use of credible local and international organizations that maintain a clear mandate towards achieving long-term sustainable strategies with a specific mechanism

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<http://siteresources.worldbank.org/INTCPR/214578-1111751313696/20480168/CPR+5+final+legal.pdf> (12.1.2008).

198 Bannon, I., and Collier, P. (eds.), 2003: *Natural Resources and Violent Conflict: Options and Actions*, Washington, DC: World Bank.

199 World Bank, 2006: *Social Development Papers: Conflict Prevention and Reconstruction*, Conflict Prevention and Reconstruction Unit, Washington, <http://siteresources.worldbank.org/INTCPR/Publications/21205096/CatalogDec6.06.pdf> (12.1.2008).

200 Trollalden, J.M., 1992: *International Environmental Conflict Resolution: The Role of the United Nations*, World Foundation for Environment and Development, Norway, 1992: 31.

for conflict resolution agreed upon by all parties.<sup>201</sup>

In 2005, UNITAR established the Programme in Environmental Governance and Democracy in order to strengthen the relationship and amount of information sharing between governments and civil society. It continues to base its activities on environmental agreements such as the Principle of the Rio Declaration (1992), and The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention, 1998). Its environmental governance projects are aimed at working with local partners and institutions in order to improve democratic structures that exemplify good governance when dealing with environmental issues. They have concentrated the majority of their pilot projects of this new body on analysing national capacities in order to build awareness on environmental risk management. Further, UNITAR has encouraged public participation in environmental decision making procedures.

#### *United Nations University*

As an autonomous organ of the General Assembly, the United Nations University (UNU) and its various research and training centres and programmes conduct research and produce reports on the causes and solutions of environment-related conflicts. For example, the UNU Institute for Environment and Human Security in Bonn is currently conducting research and participates in activities related to vulnerabilities, early warning, coping strategies and social impact projects which reflect on the Tsunami of December 2004, and the analyses of the connections between environmental degradation and migration.<sup>202</sup> The UNU International Network on Water, Environment and Health in Hamilton, Canada focuses its work on achieving water resource management

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201 Trollalden, J.M., 1992: *International Environmental Conflict Resolution: The Role of the United Nations*, World Foundation for Environment and Development, Norway, 1992: 31.

202 See: <http://www.ehs.unu.edu/> (12.1.2008).

through capacity building and water awareness-raising related to policy creating and management strengthening.<sup>203</sup> And the UNU World Institute for Development Economics Research in Helsinki aims its research and courses at understanding pro-poor theories, development initiatives and social, political and economic redistribution of resources.<sup>204</sup>

The UNU provides an academic space for issues to be discussed, debated and researched from a more theoretical point of view. It would be interesting to explore, however, whether there is a systematic knowledge transfer in place which helps to ensure that UNU Reports and research are reaching – and are being read by – Programmes and the Principal Organs in order to transform reports and rhetoric into action. The UNU could also act as a potential actor in implementing educational measures in order to raise awareness on environmental issues and conflict, as it is already involved in environmental sustainability and conflict prevention projects. For example, they are currently delving into the possibility to be more involved in reconstruction projects in Liberia by promoting higher education, academic research and training. This could expand UNU's mandate to become a 'trainer of trainers' and have the possibility to be more connected to the programmes on the ground which are dealing with the environment-conflict nexus.<sup>205</sup>

### 2.2.9 Other regional and international organizations working on environmental conflict prevention

#### *The European Union (EU)*

The EU works closely with the United Nations, holding a permanent observer status in GA proceedings and often presenting

recommendations for UN documents.<sup>206</sup> The EU has in recent times placed environmental conflict prevention at the forefront of its activities through research, conferences and new initiatives, highlighting the importance of local partnerships. A recent report financed by the European Commission and executed by ECORYS Evaluation Group Consortium addressed the need for a EU strategy of 'environmental peacemaking', which is "the use of cooperative efforts to manage environmental resources as a way to resolve conflict situations and create peaceful relations between disputing parties."<sup>207</sup> Further, the report provides a strong overview of the different policy changes, legal tools and indicators that demonstrate the effectiveness and flaws of organizations in the field. This report could provide a guideline for a similar external assessment of UN Programmes, Agencies and Organs and their projects in order to strengthen the position of the UN in integrating environmental factors into conflict prevention. As a regional group, the EU has been pushing the recognition of the need to not only discuss but implement binding strategies and concrete programmes through inter-regional cooperation.

The EU has created a number of programmes in order to establish stronger bonds between the environment and conflict prevention. Some examples for major issues areas and respective programmes are the following: On water: EU Water Initiative (EUWI) and The EU Energy Initiative for Poverty Eradication and Sustainable Development (EUEI); on forests: The EU Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT); and on monitoring initiatives: Global

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203 See: <http://www.inweh.unu.edu/inweh/> (12.1.2008).

204 See: <http://www.wider.unu.edu/> (12.1.2008).

205 UN University Newsletter, 2006: *UNU ponders continuing role in Liberia's reconstruction*, update.unu.edu, June-August 2006, 42, [http://update.unu.edu/archive/issue42\\_24.htm](http://update.unu.edu/archive/issue42_24.htm) (12.1.2008).

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206 Quaker Council for European Affairs (QCEA), 2005: *The EU's relationship with the UN*, The European Union and Peacebuilding, Briefing Paper 4, <http://quaker.org/qcea/briefings/peacebuilding/peacebuilding4.pdf> (12.1.2008).

207 Carius, A.; Tänzler, D. and Feil, M., 2007: *EU Report: Addressing the Interlinkages between Natural Resources Management and Conflict in the European Commission's External Relations*, ECORYS Nederland BV, March 21, 2007.

Monitoring for Environment and Security (GMES).<sup>208</sup> These programmes will be further evaluated in part 3 on Tools and Measures. It suffices to say at this point that such programmes demonstrate that much can be learned from the EU by the UN – and that more collaboration between the two bodies should be encouraged.

*Organization for Security and Cooperation in Europe (OSCE)*

The OSCE has worked on environmental conflict through its publication of the Strategy Document for the Economic and Environmental Dimension. This document identified emerging threats and challenges to security, with proposals for potential ‘responses and actions’. In addition to projects focused on economic development, the OSCE attempts to address environmental sources of conflict through resource management approaches addressing scarce natural resources, clean drinking water, high quality soil and prevention of biodiversity loss. It attempts to “promote stability and respond to threats and challenges to security caused by economic and environmental factors.”<sup>209</sup> Further, the OSCE explicitly states that they see ‘security’ within the following frameworks: human, economic, environment, and political security.<sup>210</sup> By placing the environment within their set of conflict prevention priorities, the OSCE has acknowledged its importance and is attempting to use early response and early warning techniques to prevent violent conflict from erupting.

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208 Carius, A.; Tänzler, D. and Feil, M., 2007: *EU Report: Addressing the Interlinkages between Natural Resources Management and Conflict in the European Commission’s External Relations*, ECORYS Nederland BV, March 21, 2007.

209 Economic Analysis Division, 2004: *Conflict Prevention Reviews*, United Nations Economic Commission for Europe, Vienna, November 5, 2004: 6.

210 Wohlfeld, M., 2004: *The OSCE as a primary instrument of conflict prevention in Europe: Frameworks, Achievements, and Limitations of the OSCE’s Preventive Action*, in: Schnabel, A. and Carment, D.: *Conflict Prevention: From Rhetoric to Reality*, Volume 1, USA: Lexington Books: 169-174.

## 2.2.10 Three types of conflict and UN accomplishments

### *Indirect resource use conflicts and the UN*

The role of the UN, and more specifically the Security Council, in indirect resource use conflicts has been quite strong, especially when the conflict poses a probability for civil war. For example, the mining and trade of conflict diamonds as a primary commodity leading to war caused the UN Security Council to pass resolutions<sup>211</sup> that placed an embargo on diamonds that were imported and exported from the Democratic Republic of the Congo (1998), Angola (1999), Sierra Leone (2000), Liberia (2001) and Côte d'Ivoire (2005).<sup>212</sup> The scarcity of timber has led to competition between regions and countries over its use as a commercial trade product, thereby causing and sustaining conflict. Due to the continuous illegal logging and timber trade in Cambodia, there is a fear that the country is at risk of sliding into conflict. The UNDP has been very involved in both small and large-scale projects helping Cambodia to prevent further indirect resource use conflicts by helping to develop its environmental management capacities by identifying priorities and needs; establish sustainable forestry and land-planning projects; and promote awareness on soil and land degradation.<sup>213</sup> Similarly to its diamonds, Liberia's timber was also sanctioned as it was being used to cause and perpetuate the conflict. However, compared to Cambodia there is very little UN presence in Liberia in terms of land and forest rehabilitation projects. Through these examples we see that the UN is engaged in conflict prevention that addressed environmental

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211 For a full list of UN Resolutions and documents passed on the subject of conflict diamonds fuelling conflict, see: Global Policy Forum: *Diamonds in Conflict: Key UN Documents*, <http://www.globalpolicy.org/security/issues/diamond/> (12.1.2008).

212 The World Diamond Council, *Conflict Diamonds: Background*, <http://www.diamondfacts.org> (12.1.08)

213 United Nations Development Programme, 2006: *Energy and Environment: Tigers, Gibbons and crocodiles, oh my!* <http://www.un.org.kh/undp/?url=/undp/programs/energy> (12.1.2008).

factors, particularly when operational prevention is needed or when warring parties are crossing national borders, elevating the problem to an international scale.

### *Direct resource use conflicts and the UN*

The links between the environment and conflict are less clear in direct resource use conflicts due to their lower intensity, thereby making it more challenging to implement adequate responses. Moreover, the repercussions of the conflict or other contributing factors often become the focal point, with the environment being pushed aside. For example, when addressing how environmental issues such as land degradation could lead to migration, or how food insecurity can increase poverty, UN and non-UN institutions tend to focus on migration and poverty, and not the environment, as the main sources of the conflict due to their more direct link to conflict. While they are also important factors, it is important not to forget the role environmental factors play. UN units focusing on development and issues such as food and water security (e.g., UNDP and FAO) could also increasingly highlight the important role they play in structural conflict prevention.

Water resource conflicts exist in numerous dimensions and the UN has contributed significantly to programmes related to the supply, quality and conservation of water sources in order to prevent them from generating conflicts.<sup>214</sup> A prominent programme is the aforementioned UN Education, Scientific and Cultural Organization's (UNESCO) 'From Potential Conflict to Co-operation Potential' Project, which looks at how water resources can be shared more efficiently through awareness building (Water Portal and Institute for Water Education), water resource management (International Hydrological Programme), and the evaluation of water capacities for future initiatives (World Water Assessment Programme). As water signifies a potential

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214 The Pacific Institute and Gleick, P., 2006: *Water Conflict Chronology*, Last updated: October 2006, <http://worldwater.org/chronology.html> (12.1.2008).



source of conflict and cooperation, it has been placed high on the priority agenda of international conferences.<sup>215</sup>

Of the three conflict types identified, it seems that in order to achieve UN reform and an emphasis on conflict prevention, it would be best to place an emphasis on the role of direct use conflicts – without ignoring the importance of the other types of conflict. At the moment, the debates surrounding “conflict prevention” are often too abstract, too normative and philosophical. By talking about efficient use and equal access to resources and markets, conflict prevention can be made concrete. In addition, conflict prevention often starts “too late”. Combined with an adequate information system, the direct use conflicts lend themselves to actions in early stages of conflict escalation. The management of water and land resources in the Sahel zone, for example, can be used as an engagement point with a country. However, it is important to be aware of the political reality on the ground and not simply favour the government perspective in the process.<sup>216</sup>

### *Complex, Conflict ‘Hot Spots’ and the United Nations*

The ‘soft link’ between environmental and conflict factors prevents powerful bodies such as the Security Council from getting involved unless a conflict has already escalated and is likely to pose a threat to international peace and security. As the environment is a common contributing factor to conflict, many escalated conflicts do exhibit clear links to environmental issues, such as in Iraq, Darfur, Liberia and Lebanon. Environment and natural resources are mentioned in the peace agreements of Sudan,

Liberia, Angola, Sierra Leone, D.R. Congo and Ache. The position of the UN in conflict resolution has been widely debated in reports such as ‘The Agenda for Peace’, the ‘Brahimi Report’, the ‘Prevention of Armed Conflict’ and ‘In Larger Freedom’.<sup>217</sup> While the UN is important in bringing urgent issues to the attention of Member States, this can also be dangerous when it causes the depoliticization of conflicts at the country or local level; for example, by scapegoating ‘climate change’ for causing and sustaining conflicts, leaders can avoid the obligation to take action. The national duty of conflict prevention should continue to be the UN’s primary goal in securing international (and human) peace and security.

While it is important not to over-politicize the environmental aspects of a conflict, the politicization of an issue beyond merely an ‘environmental’ one is important. For example, while the UK’s attempt to debate climate change in the Security Council was unsuccessful from a policy perspective, it was an important step towards raising the problem in a political forum where there is the possibility that it is taken more seriously. The politicization of a topic also provides a space for civil society actors representing different interests to become involved in advocacy measures.<sup>218</sup>

While the direct use type conflict may be the best entry point for the UN at the country level, the ‘hot spot’ type of conflict is ideal for creating awareness at the media level. This partly explains why the link to climate change and conflict is often made in regard to highly escalated conflicts, such as Darfur, even though long-term prevention of conflicts related to climate change could be much better illustrated with other cases.

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215 For a chronological list of milestones in water management in international conferences from 1972 to 2003, see: UN Education, Social and Cultural Organization’s World Water Assessment Programme, *Milestones*, <http://www.unesco.org/water/wwap/milestones/index.shtml> (12.1.2008).

216 Interview with UN Staff New York, February 6, 2008, S. Mason, V. Mauer

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217 All of these reports are listed and briefly explained in Annex A.

218 For example, the politicization of HIV/AIDS as not merely a health issue has provided wider platforms to discuss interrelated issues such as poverty, social welfare and unemployment in how they relate to HIV/AIDS.

## Summary

The UN is in a distinct position over other actors to advocate for the inclusion of the environmental factor in conflict prevention measures, due to its specific programmes, long-term expertise, financial opportunities and international legitimacy. A number of UN Programmes, Funds and Principle Organs have analyzed the influence of the environment in causing and preventing violent conflict in respect to the three types of resource conflict discussed in Part I and have also taken actions built on these insights. In particular, DPA, DPKO, UNEP, UNDP, UNDG, FAO and the principal organs of the UN (SC, SG) have made important strides in this direction. Nevertheless, key synergies are still not being used, and the role of the UN in numerous environmental conflict prevention measures (see part 3) could still be strengthened.

## Conclusions of Part 2

Key conclusions and recommendations from Part 2 are summarized in the following points:

*Changing the prevalent focus on post-conflict measures to one on prevention in all conflict phases.* The UN often focuses on the link between environment and conflict in addressing post-conflict situations only, rather than throughout all phases of a conflict (pre-, during and post-conflict). Insights from environment-related conflict research are thus often considered too late (e.g. by UNEP, WB, DPKO).

*Focusing on transversal approaches to conflict prevention.* Most approaches are still characterized by the environmental factor being treated separately rather than in a transversal manner as one of several paths to conflict prevention and resolution. Environmental issues in conflict contexts are tagged onto the perceived 'key issues'. While problem identification may still be holistic, problem analysis and assessment of measures tend to happen in a segregated manner, hindering integral and encompassing solutions (e.g., figure 9). Existing transversal approaches are still limited in scope, e.g. ENVSEC, which is geographically confined to Europe and Central Asia.

*Choosing the appropriate level for conflict prevention when dealing with the various types of environment-related conflict.* It is necessary to tailor the institutional underpinnings of conflict prevention measures carefully, taking account of the type of conflict and the local and global context of each concrete situation. Certain environment-related conflict prevention measures would benefit from being elevated to the level of the Security Council, while others are more likely to be better resolved in a different way. Elevating environmental conflict prevention to the Security Council seems useful for general measures (e.g. Kimberley Process, transparency initiatives, climate change). However, in specific cases where strategic and economic interests of member states are impinged upon, elevating issues to the level of

the Security Council may block efforts. Working at the programme and country level, in contrast, may lack leverage and lead to an overly 'technical' approach. The latter might be more effective in instances where local grievances need to be better considered, or where the Security Council is not willing or unable to act.

*Introducing "environment" into the conflict prevention debate is easier and more promising than introducing "conflict" or "security" into the climate change debate:* At present the climate change debate in the UN is already overloaded, as many issues are addressed in terms of their dependence on, or relevance for, "climate change". There is also a danger that this approach will be seen as an unnecessary "securitization" of climate change. Introducing "environment" into the conflict prevention debate, however, is more promising, as it can make conflict prevention more tangible and concrete.

*Reducing inefficiencies and tapping synergies and mutual learning potentials within the UN.* The main point of criticism often made towards the UN in general also applies to its capacity to deal with environment-related conflicts: an oversized bureaucracy, vested interests of various players and internal quarrels between different parts of the UN tend to hinder efficient action. Thereby synergies and potentials for mutual learning within the UN largely remain untapped. Regarding this point, it could be promising to commission two types of study:

The first type would focus much more *in-depth on specific cases*. Such case study reports would be helpful for UN agencies working in the field, e.g. when UN staff go to the Niger delta, they would have an assessment ready on how the environment and conflict are linked and how this relationship impacts upon the work of UN field officers. This would go well beyond the scope of part 1 of this report. The three types of conflict outlined above could however be used as a first basis to "drill" into the specific aspects that need to be known if action is to be guided adequately.

The second type of study would focus on an *in-depth assessment of UN Programmes and Agencies involved in environment, resource management and conflict prevention*. This is related to, but also well beyond the scope of part 2 of this study. Such an assessment should focus on activities and on the interlinkages between environment and conflict prevention by UN Programmes, Agencies and Projects (e.g., DEWA and the BCPR).<sup>219</sup> It would integrate both official statements and reports as well as staff experiences at headquarter and field levels. This type of evaluation would provide greater understanding of lessons learned: what is present, what is missing and what is needed in the short and long term. It could also assess in detail how the UN Programmes, Agencies and Organs are currently communicating and to what extent their projects are indeed segregated from one another, preventing the sharing of ideas.<sup>220</sup> Such an assessment would provide a comprehensive analysis of UN capacities and potential structural and operational reform.<sup>221</sup>

An evaluation specifically on the pros and cons of various mainstreaming and coordination tools would help to evaluate the benefits of an enlarged 'environmental diplomacy' unit within the UN Environment Programme, or an environmentally-focused component of the Department of Political Affairs' focal point on conflict prevention. Such an assessment should however best be undertaken in the context of a general overview of the UN in order to inform paths towards true reform. For this, a reliable commitment that such will take place should be identifiable and the possibility for a critical analysis with the aim to significantly downsize, close, or replace ineffective parts of the UN could be given. Clearly, any reform effort should avoid any increase in UN bureaucracy.

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219 The recent external evaluation of the European Commission's External Relations provides an example of what such an assessment could look like. See: Carus, A., Tänzler, D., and Feil, M., 2007: *EU Report: Addressing the Interlinkages between Natural Resources Management and Conflict in the European Commission's External Relations*, ECORYS Nederland BV, March 21, 2007.

220 While assessments of specific agencies and projects are commonplace within the UN, this study did not find any recent evaluation conducted, which provided an overview of different UN organizations working on the topic of environmental security and conflict.

221 See Measure 2 ("Impact Assessments") in Part Three of this study.

## Part 3: Environmental Conflict Prevention Measures

### Key message:

The UN's role in implementing environmental conflict prevention measures should be enhanced, especially with regard to:

- the regulation of financial flows related to natural resources;
- the culturally-sensitive use of property rights in preventing conflicts;
- mediation combined with environmental expertise to support participatory resource and conflict management;
- new options for sustainable livelihoods for marginalized parts of societies.

### Introduction

The aim of this section is to highlight possible environmental Conflict Prevention Measures (CPMs), defined as measures that can help prevent conflict by specifically focusing on environmental factors. It lies outside the scope of this report to include all environmental conflict prevention measures; the aim is rather to give a taste of some possible activities that span a wide range in order to encourage engagement with the topic. Each measure taken by itself may be ineffective and may not offer a solution. In combination, however, they provide some possible elements of a complex whole that is able to deal with environmental conflict prevention in a manner that is both concrete and transversal. We structure these environmental CPMs broadly according to a group of coordination, mutual learning, information and educational measures, and the three groups of conflict distinguished in part 1: those addressing conflicts over indirect resource use, those over direct resource use, and further measures that deal specifically with complex conflict 'hot spots'. The latter generally focus more on operational conflict prevention, the former two on structural conflict prevention. However, the CPMs of the indirect use conflict group (e.g., resource trade transparency) are also directly

linked to preventing the complex conflicts of the third group (e.g., oil in Chad).

Before describing and assessing these measures, we will reiterate some of the criteria and policy guidelines drawn from the lessons in parts 1 and 2 and used to motivate the choice of these measures. We will also link the findings from parts 1 and 2 with the more concrete level of measures outlined in this section. Some of these guidelines have a normative dimension (we believe this cannot and should not be avoided), yet it is important to be transparent about this normative basis – a further reason for listing them here, before concretizing these guidelines into the measures discussed below.

### 3.1 Criteria for environmental CPMs

The following criteria are used to guide the choice of environmental CPMs included below. The first four are to be fulfilled for all CPMs chosen. The first is given by the topic of the study. For further details on the others, see part 2.

1. **Addressing environmental factors in conflicts:** An environmental CPM addresses a) the underlying environmental trends potentially escalating a conflict, and/or b) aspects of conflict dynamics where the environment plays a key role.
2. **Treat environment as a transversal topic:** If it is not a transversal measure itself, an environmental CPM should be implemented only in a combination with other measures or in a suitable context, so that the environment is not addressed as a separate topic besides the socio-economic and political factors, but transversally within these fields of action. The focus needs to be on the socio-economic and political use and management of the environment, rather than on purely technical or economic approaches.
3. **Focusing on conflict prevention rather than on post-conflict management:** An environmental CPM should largely have conflict preventive character. It may

nevertheless be applied in post-conflict situations, but with the goal to prevent future conflicts.

4. **The measure is concrete:** Many good policy guidelines have been developed, yet there is a lack of action. Thus, all proposed measures must be specific and tangible, with ideas on how they can be institutionalized.

The implementation of any environmental CPM should also fulfill the following criteria regarding the institutional setting of the UN (see part 2):

5. **It should not increase inefficiency and bureaucracy within the UN system.**
6. **It should tap synergies and mutual learning potentials within the UN.**
7. **If used within the UN, the CPM should carefully be located at the appropriate organizational level, by blending a delicate balance of ecology and politics.**

Furthermore, it is desirable that a CPM should fulfill at least some of the following criteria (for more details, see part I):

8. **Fostering public participation and local process ownership.**
9. **Hedging against overriding carrying capacity.**
10. **Sustaining the livelihoods of vulnerable parts of society.**
11. **Supporting good governance and strengthening institutions.**

The below list of measures (table 3) will be described in more depth after the table. Each measure is presented on approximately one page, including description, rationale, institutionalization, examples and UN involvement.

Table 3 Environmental Conflict Prevention Measures (described in more depth below)

Measure	Rationale of measure	UN entity involved (Key non-UN actors in brackets)
<b>Coordination, learning and sharing</b>		
1 Internal UN coordination	Make use of synergies, combine environmental and conflict expertise	SG, SRSG & all
2 General information-sharing initiatives	Promote knowledge-sharing, network-building, and cooperation	All
3 Prospective impact assessments	Considers risks and impacts of projects	UNEP
4 Guidelines	Harmonize approaches and standards	All
5 Physical and scientific information	Provides accurate and timely information	UNEP/GRID, FAO
<b>Indirect use: 'resource curse' conflicts</b>		
6 Norms for natural resource management – financial flows	Foster transparency and good governance (e.g., EITI)	SC, IMF, WB, WTO
7 Norms for natural resource management – certification	Deliver information on social and environmental standards of production (e.g., FSC, MSC, fair trade, Kimberley Process)	SC, ILO
8 Private companies	Inclusion of companies in common policy goals	UN Global Compact
9 International groups	Multilateral approach to global problems that cannot be dealt with unilaterally	SC (G8, OSCE)
10 Fuel substitution	Decrease the dependency on energy resources from conflict zones and potentially unstable regions	UNFCCC, UN CSD
11 Reduced consumption	Reduction of consumption can be achieved independently of the necessity to substitute fossil fuels with other energy sources and the problems related with this	UN DESA, UN CSD
<b>Direct use: 'local and regional resource scarcity' conflicts</b>		
12 Organic agriculture	Alternative to conventional agriculture that avoids environmental degradation (esp. soil, water, pesticides) and enables sustainable livelihoods adapted to local conditions	FAO, UNDP, UNESCAP
13 Participatory development of property rights	Establishing and assigning property rights is promising approach to dealing with internalizing externalities	FAO, UNDP
14 Integrated Water Resource Management (IWRM)	Moves beyond consideration of water as a resource for only one economic sector or political entity	FAO, CGIAR, UNEP, UNDP, UNESCO
15 Water demand management	More sustainable approach compared to supply-side management	FAO, CGIAR, UNEP, UNDP
16 Regulation of 'virtual water' trade	A way to compensate for regional water scarcity	IMF, WB, WTO
17 Transboundary freshwater regimes	To mitigate conflicts related to shared water	UNDP/TRIB, UNEP, UN ESCWA
18 Access to markets of developed countries	Decreasing agricultural production subsidies and trade barriers in developed countries, in order to give developing	IMF, WB, WTO

		economies access to the markets of developed countries	
19	Mitigation – the Kyoto Protocol	Reducing climate change and its potentially negative effects can help to reduce pressure on ecosystems and the corresponding negative effects on human security	UNFCCC, UNEP
20	Adaptation	The increasing consensus that a certain degree of climate change is inevitable implies the need for adaptation measures	UNFCCC, UNEP
<b>Complex, conflict ‘hot spots’</b>			
21	Mixed teams of environmental experts and mediators	Third-party assistance – involving both environmental and mediation expertise – can support conflict parties in dealing with environmental issues and reaching an agreement	DPA, UNEP, SRSGs
22	Multiple stakeholder dialog processes	Environmental concerns often affect diverse stakeholder groups; involving them in dialog processes increases legitimacy and sustainability of decisions	DPA, UNDP, UNEP
23	Wealth-sharing in peace agreements	By de-linking territory from the actual resource, wealth-sharing clauses can help to end separatist conflicts. They also provide important resources for post-peace agreement reconstruction efforts	DPA, UNEP
24	Peace parks	The joint management of peace parks and natural resources requires collaboration between the involved states, thereby serving as a confidence-building measure	UNEP (IUCN/WCPA)
25	Smart sanctions	When diplomatic initiatives have failed, sanctions increase pressure before the use of military force	DPKO, SC
26	Environment and natural resources management in post-conflict cases	In the transitional period, the institutional capacity of a government is often very weak. Outside assistance may be needed to manage environment or natural resources	UNEP, DPKO, UNDP

### 3.2 Coordination, mutual learning, information and educational measures

Coordination, mutual learning, information, and educational measures promote knowledge-sharing, the building of networks and the gathering, analyzing, and distributing of relevant information to a variety of actors involved in preventing conflicts related to environmental factors.

#### Measure 1: Internal UN coordination

*Description:* The minimal requirement of coordination within the UN is for all entities working around the same issue to communicate with each other, so as to avoid duplications and redundancies. On the global level, possible measures to enhance communication, coordination, and cooperation include inter-agency mechanisms; collaborative initiatives, inter-agency secondments; environmental dimensions in toolkits designed to assess needs;

training workshops; and cooperation focused on specific conflict prevention measures. On the country level, possible measures include joint third-party teams including mediators and environmental experts, e.g., teams put together by an SRSG (see also measure 21); and joint efforts in conflict regions following the ‘One UN’ approach.<sup>222</sup>

*Rationale:* The problem of lacking coordination within the UN is not specific to the topic of environment and conflict, but is an innate problem of large organizations, minimizing the effective use of human and financial resources. However, it is of particular relevance to the field of environment and conflict prevention, as the

<sup>222</sup> UN, 2006: *Delivering as One*, <http://www.un.org/events/panel/resources/pdfs/HLP-SWC-FinalReport.pdf> (12.1.2008) see also <http://www.unsystemceb.org/oneun/> (12.1.2008); see also: *Delivering as One pilots* <http://www.undg.org/?P=7> (12.1.2008).



two areas are generally covered by different UN entities, calling for greater cooperation between the two of them if they are to make use of synergies.

One important measure to increase UN coordination is the “old” approach of putting together a task force. The key requirement is that there is a high priority issue that brings people together. This enables experts to work together, while at the same time keeping their home agencies in the information loop, maintaining connectivity. A task force that the participant institution does not find important, however, will send its weakest members and the task force will die. So the priority given to the issue is a key point to make it fly. The task force during the Sudan North South process was a good example: people from DPKO and DPA were involved, they were highly motivated because the importance was apparent to all, and they could table various issues and work through them. The North South Sudan task force was a truly multi-functional body: In one week one topic would come up, such as rule of law or police or DDR, the next week another, and then one would pool it. It is in such a setting environmental issues could be brought up in a focused manner, yet transversal to the various UN entities.<sup>223</sup>

*Assessment:* Rather than adding on additional resources and organizations, better coordination and use of synergies is the cheapest and most efficient way of making better use of an existing organization. Coordination efforts should avoid any further increase in UN bureaucracy.

*Institutionalization:* The One UN approach means working with one UN leader, one program, one office, and one budgetary framework, in order to avoid duplications or conflicts between various UN agencies on the country level. For the sake of coherence, donors should contribute through a multi-donor trust fund for a country and refrain from directly

funding individual agencies and pushing through their own particular agendas.

The Common Country Assessment (CCA) and the UN Development Assistance Framework (UNDAF) are other examples which were created in order to put forth a unified approach, vision, and strategy on common development goals. While the CCA uses a country-based analysis of the national development situation to identify key development issues, the UNDAF then acts as the common strategic framework for the operational activities of the United Nations system at the country level. Both use the Millennium Development Goals as a guideline.

*UN involvement:* The SC has a key responsibility to increase coordination at the global level. The One UN pilot countries (Albania, Cape Verde, Mozambique, Pakistan, Rwanda, Tanzania, Uruguay, and Vietnam<sup>224</sup>) will help to assess how to best increase coordination at the country level.

## Measure 2: General information sharing initiatives

*Description:* General information-sharing initiatives bring together institutions, organizations, offices, and staff that work on similar subjects and stand to benefit from the exchange of their particular lessons and experiences. Sharing information within the UN (see measure 1), but also with other institutions, is central to making best use of the comparative advantages of the various actors (governmental, non-governmental, inter-governmental, private, etc.).

*Rationale:* Information-sharing may help to avoid duplication, while fostering cooperation. Moreover, external expertise can be tapped by inviting, for instance, academic experts to engage with practitioners, or headquarters-based staff with those working in field offices.

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223 Interview with UN Staff, New York, 6 Feb. 2008, S. Mason, V. Mauer.

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224 *Delivering as One pilots*  
<http://www.undg.org/?P=7> (12.1.2008).

*Institutionalization and examples:* One example of a sharing initiative is the previous Conflict Prevention Network (CPN), which ended in 2001<sup>225</sup> and is now being followed by a new 2007 version which draws on lessons learned from the 2001 Network. Moreover, a newly-launched Peacebuilding Partnership within the framework of the Commission's Instrument for Stability focuses on capacity building of and collaboration with and among civil society organizations in strengthening local, national and regional conflict prevention and management efforts. The nexus of environment, natural resources, energy, and conflict, including the importance of environmental peacemaking, is part and parcel of those initiatives.

An interesting inter-agency partnership is the Environment and Security Initiative (ENVSEC) between UNEP, UNDP, OSCE, UNECE and REC as well as NATO as an associated member, which identifies environmental threats to security and aims to initiate diplomatic and technical interventions. Another example of an inter-organizational initiative that has facilitated dialogs and generated recommendations and strategies for change within local, regional, national, and international organizations is the Environmental Change and Security Program, led by the Woodrow Wilson International Center for Scholars.<sup>226</sup> A further interesting project is a joint US-China venture on academic training in environmental conflict resolution.<sup>227</sup>

*Assessment:* General information-sharing initiatives acknowledge the willingness of institutions to share experiences and engage in cooperative, possibly even coordinated, practices. They are also evidence of the recognition that international, state, and civil society actors need

to work together in addressing key challenges that no actor can address alone. Donors hold a key responsibility in requiring communication, coordination and possibly collaboration between the various projects they fund. Giving due credit to all actors involved in a joint effort also helps to foster a sharing environment.<sup>228</sup> The main threat to information-sharing initiatives is the danger that bureaucracy will simply be increased without additional benefit on the implementation level.

*UN involvement:* The UN could benefit from more effective information strategies, both within the system amongst its own agencies (Measure 1) and organs, as well as with governments, the private sector, non-governmental organizations and other civil society actors that have developed their own networks and have the capacity to encourage cooperation and knowledge-sharing. Specifically, the CCA and UNDAF provide tools for dialog between governments, civil society and the UN to identify how the UN can aid national efforts.

### Measure 3: Prospective impact assessments

*Description:* Prospective impact assessments are conducted prior to major decisions on a proposed project and require the identification, prediction, evaluation and mitigation of how the process will affect the stakeholders, environment, or socio-political and other relevant factors.

*Rationale:* By conducting environmental (as well as other) impact assessments, it is ensured that the main potential risks and impacts are considered before deciding to proceed on a project, thereby encouraging the design of proper follow-ups, long-term sustainability, and structural reform.

*Institutionalization and examples:* Various countries and institutions are familiar with

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225 Carius, A., Tänzler, D., and Feil, M., 2007: *EU Report: Addressing the Interlinkages between Natural Resources Management and Conflict in the European Commission's External Relations*, ECORYS Nederland BV, March 21, 2007: 37f.

226 <http://www.wilsoncenter.org/ecsp> (12.1.2008).

227 University of Vermont (UVM) and Peking University <http://dln.uvm.edu/~rmaurizi/envs295/index.php?page=home> (12.1.2008).

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228 swisspeace KOFF newsletter Oct. 1, 2007, Issue 61: Mediators in need of a Mediator? [http://www.swisspeace.ch/typo3/fileadmin/user\\_upload/pdf/KOFF/Newsletter/2007/61\\_e.pdf](http://www.swisspeace.ch/typo3/fileadmin/user_upload/pdf/KOFF/Newsletter/2007/61_e.pdf) (12.1.2008).

impact assessments or provide relevant information; examples include the EU Sustainability Impact Assessment,<sup>229</sup> the Peace and Conflict Impact Assessment methodology as applied by various institutions,<sup>230</sup> the Handbook for Sustainability Impact Assessment,<sup>231</sup> and the Impact Assessment of the EU Action Plan for Forest Law Enforcement, Governance and Trade (FLEGT).<sup>232</sup> The criteria developed by the World Commission on Dams<sup>233</sup> help to assess the impact of dam building before construction begins.

*Assessment:* While impact assessments are important in order to establish guidelines, indicators and needs analyses for the improvement of existing projects and lessons learned for future projects, impact assessments often provide generalized indicators that are not always relevant in different countries. Furthermore, it is crucial to design the assessment in such a way as to allow the inclusion of a variety of impacts that could occur in different settings. Although the assessments are intended to challenge social, environmental, political and economic issues, the methodology of impact assessments, which is very results-oriented, has a tendency to place too much emphasis on only one set of impacts, be they economic, environmental or social, rather than

on all of those in a comprehensive manner. A major risk is that no consequences may be drawn from the results of an impact assessment, which thus only generates relevant information without translating them into action. Special attention must therefore be given to the establishment of an institutional setting to assure that the necessary consequences are drawn from impact assessments.

*UN involvement:* Established at the UNCED, Agenda 21 promotes a global action plan for sustainable development and requires that impact assessments be integrated into decision making processes. Many UN entities use environmental impact assessments, e.g. UNECE<sup>234</sup> or UNEP.<sup>235</sup> The “Convention on Environmental Impact Assessment in a Transboundary Context”<sup>236</sup> of 1991 was important in relation to the international dimension of environmental impacts.

#### Measure 4: Guidelines

*Description:* Guidelines and checklists provide indicators for measuring the sustainability of policies and as a review of geographic and thematic strategies and programs. Guidelines provide a broad set of criteria also used in impact assessments (measure 3) and scientific information (measure 5).

*Rationale:* Guidelines and checklists support the harmonization of system-wide approaches and activities. They assure that certain minimum standards are kept and tools and instruments are applied.

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229 Kirkpatrick, C. and Lee, N., 1999: *Fern's comments on: The EU's Sustainability Impact Assessment, Phase One and Two*, Institute for Development Policy and Management and Environmental Impact Assessment Centre, University of Manchester, <http://www.fern.org/pubs/ngostats/sias.htm> (12.1.2008).

230 Hoffman, M., 2004: *Peace and Conflict Impact Assessment Methodology*, Berghof Research Center for Constructive Conflict Management, [http://www.berghof-handbook.net/articles/hoffman\\_handbook.pdf](http://www.berghof-handbook.net/articles/hoffman_handbook.pdf) (12.1.2008).

231 Handbook for Sustainability Impact Assessment, <http://trade.ec.europa.eu/doclib/html/122363.htm> (12.1.2008).

232 <http://ec.europa.eu/environment/forests/flegt.htm> (12.1.2008).

233 World Commission on Dams, 2000: *Dams and Development: A New Framework*, London and Sterling: Earthscan Publications, <http://www.dams.org/report/> (12.1.2008).

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234 Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991), <http://www.unece.org/env/eia/eia.htm> (12.1.2008).

235 UNEP, 2002: *Training Resource Manual – Second Edition. UNEP's Environmental Impact Assessment*, [http://www.unep.ch/etu/publications/UNEP\\_EIA\\_Manual.pdf](http://www.unep.ch/etu/publications/UNEP_EIA_Manual.pdf) (12.1.2008).

236 Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) <http://www.unece.org/env/eia/eia.htm> (12.1.2008).

*Institutionalization and examples:* The EU Checklist on Root Causes of Conflict and the interservice Quality Support Group (iQSG) oversee the drafting of Country and Regional Strategy Papers (C/RSPs) – which outline the minimum requirements and conduct assessments for programming documents – and provide a Programming Fiche on Conflict Prevention. The Checklist on Root Causes of Conflict can act as an important mainstreaming tool for EU activities. If a similar approach is adopted at the UN level, more recommendations of how to mainstream natural resource management, conflict sensitivity, peacebuilding and sustainability should be provided.<sup>237</sup>

As a joint initiative, the Practical Guide to Multilateral Needs Assessments in Post-Conflict Situations is compiled taking into account past experiences, methodologies, and recommendations in understanding the rationale, scope, timeline and results of needs assessments.<sup>238</sup> The guide represents a need in and of itself, on behalf of the coalition partners, to learn from each other, provide reviews and analyses of their projects, and to provide country teams with a more comprehensive guide on needs assessments.

UNEP's Post-conflict Assessment Unit has conducted evaluations on the effects of conflict on the environment and people's health in conflicts in Afghanistan, Bosnia-Herzegovina, Liberia, and Iraq.<sup>239</sup> Other examples include:

Post Conflict Needs Assessment (PCNA) methodology<sup>240</sup> and the Transitional Results Matrix<sup>241</sup>; the UN Environment Programme's Post-Conflict and Disaster Management Branch (PCDMB)<sup>242</sup>; the ENVSEC Initiative;<sup>243</sup> and the World Bank Strategic Environmental Assessments: Capacity Building in Conflict-Affected Countries.<sup>244</sup>

*Assessment:* Guidelines and checklists can serve as mainstreaming tools by fostering a similar project culture throughout an organization – and even across organizations. Problems lie in the enforcement of the utilization of such guidelines – if their application is not mandatory, the implementation will be uneven and the result inadequate. Monitoring and Needs Assessment Programs are integral elements of conflict prevention; however, many of them appear to be conducted in the post-conflict phase instead of the period leading up to a conflict or during a conflict. Therefore, they are used more as a reactive response instead of a preventive mechanism. The danger of guidelines is that they lead to excessive standardization.

*UN involvement:* See also “institutionalization and examples” above; Monitoring and Needs Assessments can be conducted in countries vulnerable to conflict or in countries recovering from conflict, to build national plans and intervention strategies to consolidate peace and encourage development and recovery. The Practical Guide to Multilateral Needs

237 Carius, A.; Tänzler, D. and Feil, M., 2007: *EU Report: Addressing the Interlinkages between Natural Resources Management and Conflict in the European Commission's External Relations*, ECORYS Nederland BV, March 21, 2007: 33ff.

238 The United Nations Development Programme; World Bank; United Nations Development Group, 2004: *Practical Guide to Multilateral Needs Assessments in Post-Conflict Situations*. Also published under: World Bank, 2004: *Social Development Papers: Conflict Prevention and Reconstruction*, August 15, 2004. [http://www.undp.org/cpr/documents/prevention/integrate/Post\\_Conflict\\_Needs\\_Assessment\\_methodology.pdf](http://www.undp.org/cpr/documents/prevention/integrate/Post_Conflict_Needs_Assessment_methodology.pdf) (12.1.2008).

239 Matthew, R.A. et al., 2004: *Chapter 1: Analyzing Environment, Conflict and Cooperation*, UN

Environment Programme, *Understanding Environment, Conflict and Cooperation*, Division of Early Warning and Assessment (DEWA), 8, <http://www.wilsoncenter.org/topics/pubs/unep.pdf> (12.1.2008).

240 <http://www.undg.org/index.cfm?P=144> (12.1.2008).

241 UNDG/World Bank, 2005: *An Operational Note on Transitional Results Matrices – Using Results-based Frameworks in Fragile States*, <http://siteresources.worldbank.org/INTLICUS/PolicyandGuidance/20330632/Operational%20Note%20on%20TRMs.pdf> (12.1.2008).

242 <http://postconflict.unep.ch/> (12.1.2008).

243 <http://www.envsec.org/> (12.1.2008).

<http://www.envirosecurity.org/actionguide/view.php?r=124&m=publications> (12.1.2008).

Assessments in Post-Conflict Situations<sup>245</sup> is useful for practitioners to improve the reliability and speed of conflict prevention and needs assessments.

**Measure 5:**  
Physical and scientific information

*Description:* Physical and scientific information is collected with state-of-the art technological methods to generate an accurate reflection of geographic, bio-physical, chemical and other visible and measurable trends and conditions.

*Rationale:* The systematic collection of physical and scientific information helps to provide accurate and timely information on the environment in order to prevent conflicts, respond quickly to disasters and conflict, promote awareness between experts in global monitoring, experts in environment and security issues, and policy-makers. Reliably collected scientific information can also provide a common basis independent of differing policy agendas of conflicting groups.

*Institutionalization and examples:* The EU Global Monitoring of Environmental Security (GMES) was developed by the European Commission and the European Space Agency as the main European contribution to an integrated Global Earth Observation System of Systems (GEOSS). The GMES aims to improve Europe's global and regional monitoring of the state of the environment through an integrated network of earth observation sensors.<sup>246</sup> Among the important elements for addressing conflict prevention with environmental factors are: The rapid reaction mechanism for external relations; natural hazard and global climate change monitoring; the water, vegetation, and food security monitoring activities; border

surveillance, civil protection, and internal security for European citizens; and the Common Foreign and Security Policy, including European Security and Defense Policy, development aid, and humanitarian assistance.<sup>247</sup>

*Assessment:* Scientific information has the potential of building a common basis that conflicting parties can agree on. On the other hand, excessive emphasis on scientific facts may depoliticize a conflict and may thus hinder sustainable conflict transformation. Because such physical and scientific information collection systems combine the gathering of technical data with social research and policymaking, the integration of these diverse types of data into comprehensive, informative and accessible reports is a demanding task.

*UN involvement:* UNEP's post-conflict and disaster management branch is one of the main UN entities involved in gathering and assessing scientific data related to the environment. Environmental assessments aim to provide scientific data to assess the impact of war on the environment, but also to avoid future conflicts related to the damaged environment. At present, UNEP's post-conflict and disaster management branch has programs in Nigeria, Indonesia, Sri Lanka, Maldives, Afghanistan, Lebanon, Liberia, and Sudan.<sup>248</sup> UNEP's DEWA/GRID<sup>249</sup> is also a key UN center for data and information management related to global and regional environmental data in order to support the environment assessment and early-warning activities of UNEP and its partners. FAO also has a research and data mandate, and provides

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[http://www.undp.org/cpr/documents/prevention/integrate/Post\\_Conflict\\_Needs\\_Assessment\\_methodology.pdf](http://www.undp.org/cpr/documents/prevention/integrate/Post_Conflict_Needs_Assessment_methodology.pdf) (12.1.2008).

246 Global Monitoring for Environment and Security: *Overview*, Last update: November 16, 2006, <http://www.gmes.info/157.0.html> (12.1.2008).

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247 Europe: Gateway to the European Union, 2005: *Global Monitoring for Environment and Security (GMES)*, Brussels, MEMO/05/420: Rapid, Press Releases, November 14, 2005, <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/420&format=HTML&aged=1&language=EN&guiLanguage=en> (12.1.2008).

248 <http://postconflict.unep.ch/publications.php?prog=guidance&show=current> (12.1.2008).

249 <http://www.grid.unep.ch/> (12.1.2008).

extensive statistical data related to natural resources online.<sup>250</sup>

### 3.3 Measures to address indirect resource use conflicts (structural conflict prevention)

#### Transparency measures

Transparency is a crucial element of good governance and as such is an important aspect of any sustainable development. The potential benefit of transparent enhancing measures in the extractive industry is particularly important due to the importance of this sector for national GDP in many developing resource-abundant states.

#### Measure 6: Norms for natural resource management – financial flows

*Description:* Globally accepted norms on how to regulate the international flow of finances and goods related to natural resources would be a key step in preventing ‘resource curse’ type conflicts. Norms enforced by peer pressure can at times be more effective than laws, if such laws cannot be agreed on or enforced. Collier<sup>251</sup> proposes a charter for regulating the misuse of natural resource revenues. Such a charter could, for example, outline the basic features of how contracts should be auctioned to bidding companies in a transparent process. This would prevent companies from bribing their way into acquiring contracts. Second, the charter would stipulate that companies should bear part of the price risk, to avoid the negative impacts of weak states trying to deal with boom-bust cycles. A third requirement would be to make payments by extractive companies transparent, as has been recommended by the Extractive Industries Transparency Initiative (EITI). This information

can then be used by citizens to monitor how much money their government is taking in, in order to compare this figure with their government’s public spending – information that should also be made public. As many of the companies in the extractive industry are based in Western states, public pressure could be exerted to make these companies join such a charter.

*Rationale:* The main strength of measures improving transparency of financial flows is their potential to cut one core lifeline of corrupt governments and institutional arrangements underlying, prolonging, or fueling many conflicts. Another forte of such measures is that they tackle the problem from the admittedly somewhat limited entry point of public income, which nevertheless has the potential to influence the whole system by fostering general transparency awareness. Lack of transparency of financial flows can facilitate financing rebel groups, state militarization, or weapons trade. Measures to enhance transparency thus have the potential to stabilize and strengthen the often weak developing states, enabling them to invest more in development.

*Institutionalization / examples:* One of the most important transparency initiatives concerned with financial flows is the Extractive Industries Transparency Initiative (EITI),<sup>252</sup> launched in 2002 and now institutionally based in Norway. It is a voluntary mechanism that includes private companies and governments as well as interested organizations of the local and global civil society, aiming directly at improving transparency of the income side of the 53 resource-rich developing countries. More than half have now either committed to implement EITI, or are on their way to doing so. These members are in very different stages of implementation, and progress is uneven.

*Assessment:* The EITI has established itself as one of the leading measures fostering transparency in developing countries. While it is certainly too early to celebrate its success, there are arguably

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250 [http://www.fao.org/waicent/portal/statistics\\_en.asp](http://www.fao.org/waicent/portal/statistics_en.asp) (12.1.2008).

251 Collier, P., 2007: *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It*, Oxford: Oxford University Press.

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252 <http://www.eitransparency.org> (12.1.2008).

some improvements in member states. Critics point to the possibility of mingling goods of banned origin with the output from certified production and to the fact that the agreement is a voluntary contract and can be breached without any formal consequences. Another weakness of the EITI is that measures aimed at making financial flows in states more transparent are generally voluntary, since states are sovereign actors in international law. This also applies to the EITI, which lacks enforcement tools, leaving implementation to the discretion of the individual countries. There are also critical voices<sup>253</sup> arguing that EITI only concentrates on the revenue side of transparency and fails to address the arguably more important government expenditures, which are particularly prone to abuse.

*UN involvement:* The UNSC recognized the role of EITI in its Presidential Statement of June 2007.<sup>254</sup> The adoption of General Assembly or even Security Council resolutions endorsing the initiative, as was the case with other transparency initiatives (e.g., the Kimberley Process), would send a positive message to potential member states.

#### Measure 7: Norms for natural resource management – certification

*Description:* Certificates give consumers information and guarantee specific qualities of goods (e.g., criteria for labor standards, transportation, etc.). They are managed by various kinds of organizations (producer, consumer, public, interest groups, etc.) that develop the specific criteria, promote them towards the targeted consumers, admit new

producers or products, and monitor whether members are implementing the requirements correctly.

*Rationale:* The end consumers' buying preferences are decisive for companies and can strongly influence their behavior. Certificates enable consumers to use their decision power to favor companies meeting specific desired standards and thus, little by little, direct the whole industry in a certain direction, e.g. towards avoiding the trade in illegal or conflict-related products.

*Institutionalization and examples:* One of the most successful initiatives controlling and certifying good flows is the Kimberley Process.<sup>255</sup> It was launched by the diamond industry and producer countries who feared for their reputation after being blamed of inactivity concerning the problem of so-called 'blood diamonds', a label referring to the fact that diamonds constitute the financial base of many rebel groups, for example in Sierra Leone or Côte d'Ivoire. The process is an agreement between major diamond-producing and -consuming countries and the diamond industry. It aims at establishing complete transparency about the origins of diamonds for the end consumer. According to the process, every single shipment of rough diamonds is accompanied by a so-called Kimberley Process Certification Scheme (KPCS)<sup>256</sup> issued exclusively by members. Diamonds lacking such a certification may not be traded in any of the member countries. The Kimberley Process is now an established and functioning international transparency regime, one of the very few in the natural resource sector that works.

End consumers are familiar with various labeling systems. They exist for a broad range of products, but only a few of them (e.g. Max Havelaar,<sup>257</sup> FSC,<sup>258</sup> etc.) have really established

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253 Goldwyn, D. L., 2004: *Extracting Transparency*, Georgetown Journal of International Affairs, Winter/Spring 2004.

254 Statement by the President of the Security Council, 25 June 2007, S/PRST/2007/22 <http://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/CPR%20S%20PRST%202007%2022.pdf> (12.1.2008).

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255 <http://www.kimberleyprocess.com/> (12.1.2008).

256 [http://www.kimberleyprocess.com/background/index\\_en.html](http://www.kimberleyprocess.com/background/index_en.html) (12.1.2008).

257 <http://www.maxhavelaar.ch/en/> (12.1.2008).

258 <http://www.fsc.org/en/> (12.1.2008).

themselves in the market. The fair-trade labels foster decent working conditions and a fair market price, and they represent a concerted effort to link the three aspects of social, environmental, and economic considerations.<sup>259</sup> Complementing the social labels listed above, eco-labels have also been put forth as national initiatives. Among such labels are the designations ‘certified organic’ (‘Bio’ in German), the Nordic Swan, Ecocert, and the EU label, the Flower.

The EU’s Forest Law Enforcement, Governance and Trade (FLEGT)<sup>260</sup> Process has been created to help combat illegal logging through support for improved governance in wood-producing countries and a licensing scheme to prevent illegal timber from being imported to the EU. FLEGT is developing a licensing system, which will encourage countries to commit themselves to the Voluntary Partnership Agreements (VPAs) and be accountable for ensuring that their timber is legal, thereby allowing it to enter into the EU. Currently, Indonesia, Malaysia, Ghana, and Cameroon are potential partners, and there is hope that Liberia’s new forestry reforms could make it a candidate as well.

*Assessment:* Certificates and labels are an important step in the efforts to make consumers more conscious about the consequences of their choices and the producers more prone to respect basic ethical, social, and environmental standards. One potential problem is that strict controls – vital to their credibility – may become more difficult to enforce as more and more producers join, making the system easier to abuse. Another problem is the uncontrolled growth in the number of different labels, which can confuse customers and creates opportunities for unreliable labels, thus augmenting the risk of discrediting the whole label industry. Nevertheless, the Kimberley Process, for example, has helped significantly in banning

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259 EurActiv Network, 2004: *CSR – Social labeling*, <http://www.euractiv.com/en/social/europe/csr-social-labelling-archived/article-117461> (12.1.2008).

260 <http://ec.europa.eu/environment/forests/flegt.htm> (12.1.2008).

blood diamonds from the legal market. Moreover, the fact that its members seem to be willing to exclude non-implementing countries, as was the case with the Republic of Congo, underlines its credibility.

The FLEGT has been questioned due to its focus on ‘legality’ rather than on ‘sustainability’, as legal loopholes may cause a new type of competition within countries, instead of focusing on the long-term preservation and management of the forests. Further, it will still be possible for countries that have signed the VPA to import illegal timber from non-VPA signatories and re-export it to the EU. Therefore, independent monitoring and the creation of new EU legislation may be necessary to ensure that no illegal timber is entering the EU markets through non-VPA channels.<sup>261</sup> Questions have also arisen surrounding the effects of the FLEGT on the role and rights of indigenous populations and as to whether the FLEGT can protect them from being exploited by the illegal timber trade. Further, secondary processed products such as pulp, paper, and furniture are not included as valid products, thereby limiting the measure’s effectiveness.<sup>262</sup>

*UN involvement:* The official endorsement of the Kimberley Process by UN General Assembly Resolutions 55/56, 57/302, 58/290, 59/144 and Security Council Resolutions 1459, 1521 and 1579 clearly highlights the broad perception of the process as being the main tool to deal with the problem of conflict diamonds. The UN could also take the lead by promoting the use of labeled products (e.g., by only accepting wooden furniture made out of FSC wood) for its own consumption and thus documenting its

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261 Environmental Investigation Agency and Telepak, 2007: *Blocking Loopholes with Law: Why FLEGT VPAs require New EU Legislation*, February 2007, [http://www.illegal-logging.info/uploads/EIA\\_VPA\\_legislation.pdf](http://www.illegal-logging.info/uploads/EIA_VPA_legislation.pdf) (12.1.2008).

262 Carius, A., Tänzler, D., and Feil, M., 2007: *EU Report: Addressing the Interlinkages between Natural Resources Management and Conflict in the European Commission’s External Relations*, ECORYS Nederland BV, March 21, 2007: 59.



conscience for socially and environmentally sustainable products, augmenting the awareness of its employees.

## Codes of Conduct

Codes of conduct are able to exert decisive pressure on various private and public actors in the international field. Contrary to traditional power politics, they try to influence the public opinion and consumer preferences through media campaigns as a way to influence targeted actors (states as well as private companies) in the desired direction.

### Measure 8: Private companies

*Description:* Codes of conduct for private companies encourage them to introduce and respect certain rules on how (and with whom) to carry out their activities. Such codes have become important since they address the behavior of actors in the production and trade of natural resources which – due to globalization – are increasingly powerful and sometimes poorly controlled. All these codes are voluntary and rely on the pressure of public opinion to motivate the companies to join and, probably even more importantly, to respect them. Such codes can be formulated by the firms themselves, but also by governments, international institutions, or NGOs.

*Rationale:* Private multinational companies are key players not only in the world economy, but especially when it comes to the trade in natural resources stemming from conflict regions that potentially sustain corrupt and authoritarian governments. These enterprises are powerful, sometimes more so than the states they are active in, but they rely heavily on maintaining a good reputation in public opinion. This makes private businesses receptive for codes of conduct. The rationale behind the inclusion of multinational firms is that their behavior and their actions have a much more direct – and in certain aspects stronger – impact on the situation in countries

suffering from resource-related conflicts than diplomatic actions or UN resolutions.

*Institutionalization and examples:* Codes of conduct have been developed either by states (e.g., the Voluntary Principles on Security and Human Rights<sup>263</sup> initiated by the US and GB after oil companies were blamed for violations of human rights on their production sites) or by international institutions such as the UN (Global Compact),<sup>264</sup> the International Institute for Environment and Development, which launched the ICMM (International Council of Mining and Metals) principles,<sup>265</sup> or the Organization for Economic Co-operation and Development (OECD),<sup>266</sup> which has developed Guidelines for Multinational Enterprises.

*Assessment:* The strength of the various codes of conduct is the direct influence they exert on some of the single most powerful actors, the multinational enterprises, in the resource trade business. Respect for the codes thus has the potential to greatly reduce resource-related conflict risks. Their weakness is clearly their voluntary character. Companies join easily and sometimes just as much for reputation reasons than for ethical ones, and the degree of implementation depends on their voluntary efforts. An interesting approach to dealing with the lack of enforcement possibilities is offered by the OECD guidelines. Its members have committed themselves to establishing National Contact Points where complaints can be presented against companies that violate the OECD guidelines.

*UN involvement:* The UN should strive to make the Global Compact a leading forum for public-private partnerships. Also, respect for the Global Compact norms should be made more binding on members, by increasing the incentives or

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263 <http://www.voluntaryprinciples.org/> (12.1.2008).

264 <http://www.unglobalcompact.org/> (12.1.2008).

265 <http://www.icmm.com/> (12.1.2008).

266 [http://www.oecd.org/department/0,3355,en\\_2649\\_34889\\_1\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/department/0,3355,en_2649_34889_1_1_1_1_1,00.html) (12.1.2008).

imposing sanctions on members who are in violation of the Global Compact.

### Measure 9: International groups

*Description:* Codes of conduct need not only target private companies, but can also aim at establishing standards for other institutional settings such as groups of nations. International groups can provide forums for dealing with conflict-related issues. Depending on the status and the determination of their members, they can be powerful actors with much influence in their area.

*Rationale:* Environmental problems rarely stop at national borders and often affect several states. In a time of growing international interdependence and globalization, the same is true for nearly any security- and conflict-related issue, such as democratic control of military forces, terrorism, inequitable development, migration, etc. As problems are international, solutions are also to be found on an international scale. Hence the significance of international groups that establish codes of conduct for themselves, providing forums for national states and coordinating cooperation among the latter. Depending on the status and the determination of such a group whose members have established codes of conduct for themselves, the codes of conduct can be powerful measures with much influence in the area they address.

#### *Institutionalization and examples:*

One example of a code of conduct addressing international groups that is not related to the environment, but interesting nonetheless, is the OSCE Code of Conduct for the Politico-Military Aspects of Security,<sup>267</sup> which links civil-military relations to human rights and international humanitarian law, focusing on the democratic control of armed forces. Countries have to report regularly on the implementation

progress of the code (particularly concerning democratic control of their armed forces), allowing for limited implementation control by other members. Codes in the field of environment and sustainability could be patterned on the experiences gained from this code and its mechanisms for maintaining compliance.

*Assessment:* The main strength lies in the potential of international bodies to address powerful actors directly. The main weakness is the voluntary character of such codes and the impossibility of enforcing implementation. A state that is not subject to pressure in terms of its international reputation is virtually free to violate its obligations, as was the case with Russia (as a party to the OSCE) in the Chechnya conflict.

*UN involvement:* Most of the international groups of states are acting independently from each other as well as from the UN. One problem is the difficulty of coordinating between the diverse international efforts and initiatives that sometimes deal with the very same problem. In this context, the UN would be well positioned to take on the role of the coordinator in order to multiply the effectiveness of the diverse approaches and efforts.

### Energy security

Energy security is an issue regarding all fossil fuels, but in the context of conflicts, it is primarily related to oil and gas. Besides their direct relevance to the issue of conflict prevention, energy security measures also help to mitigate climate change (see measures 19 and 20 below), as climate change is tightly linked to fossil fuel consumption. Measures dealing with energy security regarding certain energy carriers such as fossil fuels come in two basic types: fuel type substitution or consumption reduction. There are many concrete measures to reduce fossil fuel dependency, such as gasoline taxes, standards for fuel efficiency in automobiles

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267 [http://www.osce.org/documents/sg/1994/12/702\\_en.pdf](http://www.osce.org/documents/sg/1994/12/702_en.pdf) (12.1.2008).

(CAFE-standard<sup>268</sup> in the US), standards for energy consumption in buildings ('Minergie Standard' in Switzerland),<sup>269</sup> subsidies to guarantee feed-in tariffs for renewable energy ('100,000 Roofs Program' in Germany),<sup>270</sup> tradable renewable energy quota ('green certificates' in Sweden),<sup>271</sup> etc. In the following, we generally describe the two broad types of measures. We refer to the literature (e.g., Sterner)<sup>272</sup> for concrete applications.

## Measure 10: Fuel substitution

*Description:* Fossil fuel is substituted by other energy sources. Alternative electricity production options include many renewables (such as hydropower, wind, or solar energy) and nuclear power; alternative liquid fuels include mainly varieties of biofuels. Process heat may also be generated by biomass.

*Rationale:* The aim of substitution is to decrease dependency on energy resources from conflict zones and potentially unstable regions, from where much of the current and most of the future oil and gas supply originates (Middle East, Russia, parts of Africa). Substituting these increasingly scarce resources could reduce pressure on their exploitation, thus reducing incentives for the worst excesses of potentially conflictive policy and business dynamics.

*Institutionalization and examples:* Many countries offer policy programs to support renewable energy sources. The most prominent example is the current emphasis on liquid biofuels to reduce

oil dependency for transport fuels. Both the EU and the US have stated ambitious goals for the next ten years that have resulted in a huge boom for biofuel production. Since the 1980s, Brazil has been making strong use of biofuels, substituting significant amounts of gasoline with ethanol from biomass. Further references are given in the footnotes on the general problematic,<sup>273</sup> with regard to the EU<sup>274</sup> and the US,<sup>275</sup> and concerning land competition,<sup>276</sup> soy beans,<sup>277</sup> and water consumption.<sup>278</sup>

*Assessment:* Substituting fossil fuels is a viable option to reduce dependency from the unstable regions where oil and gas are extracted and to diversify the energy supply. Substitution thus

268 <http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.43ac99aefa80569eea57529cdba046a0/> (12.1.2008).

269 <http://www.minergie.ch/> (12.1.2008).

270 <http://www.100000daecher.de/> (12.1.2008).

271 Sweden, Ministry of Environment, 2006: *Renewable electricity with green certificates*, <http://www.sweden.gov.se/sb/d/574/a/64722> (12.1.2008).

272 Sterner, T., 2003: *Policy Instruments for Environmental and Natural Resource Management*, Washington, DC: Resources for the Future (RFF) Press.

273 Muller, A., 2007: *Organic Agriculture and the Production of Biomass for Energy Use*, Göteborg University, School of Business, Economics and Law, Working Papers in: Economics, no. 216, <https://gupea.ub.gu.se/dspace/bitstream/2077/2699/3/gunwpe0216corr.pdf> (12.1.2008).

274 EU, 2003: *Directive 2003/30/EC of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport*, O.J. L123, 17/05/2003, [http://ec.europa.eu/energy/res/legislation/doc/biofuels/en\\_final.pdf](http://ec.europa.eu/energy/res/legislation/doc/biofuels/en_final.pdf) (12.1.2008).

EU, 2005: *Biomass Action Plan*, Communication from the Commission, COM(2005) 628, Commission of the European Communities, [http://ec.europa.eu/energy/res/biomass\\_action\\_plan/doc/2005\\_12\\_07\\_comm\\_biomass\\_action\\_plan\\_en.pdf](http://ec.europa.eu/energy/res/biomass_action_plan/doc/2005_12_07_comm_biomass_action_plan_en.pdf) (12.1.2008).

275 US Senate, 2005: *Energy Policy Act of 2005*, Public Law 109-58-AUG.8, 2005, 109th Congress of the US Senate and House of Representatives. In particular Title II, and IX, Subtitle C. [http://www.fedcenter.gov/kd/Items/actions.cfm?acton=Show&item\\_id=2969&destination=ShowItem](http://www.fedcenter.gov/kd/Items/actions.cfm?acton=Show&item_id=2969&destination=ShowItem) (12.1.2008).

Whitehouse, 2007: *State of the Union Address*, <http://www.whitehouse.gov/news/releases/2007/01/20070123-2.html> (12.1.2008).

276 Land competition: Azar, C., 2004: *Emerging Scarcities - Bioenergy-food Competition in a Carbon Constrained World*, in: Simpson, D.; Toman, M. and Ayres, R. (eds.): *Scarcity and Growth in the New Millennium, Resources for the Future*, John Hopkins University Press.

277 Soy beans: Fearnside, P. M., 2001: *Soybean Cultivation as a Threat to the Environment in Brazil*, *Environmental Conservation* 28(1): 23-38.

278 Water competition: Berndes, G., 2002: *Bioenergy and Water - the implications of large-scale bioenergy production for water use and supply*, *Global Environmental Change* 12: 253-271.

helps to prevent conflicts and fosters responsible action towards human rights violations in the context of fossil fuel production. In addition, it helps to reduce greenhouse gas emissions and thus to mitigate climatic change. However, the strategy has many drawbacks, as the energy sources that replace fossil fuel have to be chosen and administered carefully so as not to lead to potentially similar negative externalities. This may not be a problem when replacing heating oil with biomass from sustainably grown forests. However, replacing gasoline with ethanol from biomass based on monocultures of soy beans or palm oil in developing countries may lead to increased deforestation and competition for land and water between food and energy crops. This can have devastating effects on the local population and may even increase rural poverty.

*UN involvement:* Sustainable energy is a topic in many UN institutions. The UN Energy at ESA is an interagency mechanism to coordinate energy-related actions in the UN, especially in the context of sustainable development. Further coordinating and streamlining efforts and integrating conflict issues at a prominent level could add to the effectiveness of this mechanism regarding conflict-relevant aspects of energy security.

#### Measure 11: Reduced consumption

*Description:* Reduced consumption of energy and fossil fuels in particular can be achieved by either increasing efficiency of use (same level of energy services with lower input of energy) or by reducing the level of energy services itself (sufficiency).

*Rationale:* The rationale for reduced consumption is similar to that of measure 10 (substitution). In addition, reduction of consumption is not linked to the necessity to substitute the fossil fuels with other energy sources and the related problems. Thus, reducing consumption is generally preferable to substitution approaches (similar to Water Demand Management versus Water Supply Management, see Measure 15).

*Institutionalization and examples:* As for substitution, there is a wide range of possible instruments to support energy efficiency. Most prominent are measures to increase efficiency in electricity use, as the generation capacity is becoming increasingly tight in Europe, for example. Investment in new power plants is therefore seen to be necessary in the near future – in particular replacing or renewing the older nuclear plants. This is of particular importance, as one option is the construction of gas-fired power plants that would increase dependency on fossil fuels again (cf. Switzerland). Other measures address energy efficiency in the building sector (Minergie, Switzerland)<sup>279</sup> or regarding various energy intensive industrial processes (aluminum, paper, cement, etc.).<sup>280</sup> Increasingly efficient fuel use is also an important issue in the transportation sector (CAFE standard in the US). Less prominent are examples of reductions in the level of energy services itself. Car-sharing initiatives, information provision regarding stand-by consumption, and travel means are among the many efforts in this area. For further references, see the following footnote.<sup>281</sup>

*Assessment:* The strengths of this measures are similar to measure 10 (substitution). In addition, policies supporting reductions in energy services have a strong potential to lead to more far-reaching societal changes, aiming at more sustainable and responsible consumption patterns regarding energy and other areas. On

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279 <http://www.minergie.ch> (12.1.2008).

280 See, e.g., the CO<sub>2</sub>-reduction goals for industry in Switzerland that will largely depend on efficiency measures, <http://www.bfe.admin.ch/energie/00572/index.html?lang=de> (12.1.2008).

281 General reference: Sterner, T., 2003: *Policy Instruments for Environmental and Natural Resource Management*, Washington, DC: Resources for the Future (RFF) Press. For sufficiency see, e.g., Minsch, J., Feindt, P.-H., Meister, H.-P., Schneidewind, U. and Schulz, T., 1998: *Institutionelle Reformen für eine Politik der Nachhaltigkeit*. Springer Verlag. Kaufmann-Hayoz, R. and Gutscher, H., 2001: *Changing Things – Moving People*, Birkhäuser.

the other side, a discussion on reduced services involves the danger of ideologization. This has to be avoided if a fruitful dialog on energy security policy is to be based on this approach. Efficiency measures may suffer from the rebound effect in that the reduction of energy needs for specific energy services does not reduce overall energy consumption, but is exploited by consumers to increase services delivered at an unchanged level of energy consumption (e.g., an efficient motor is not used to drive a certain mileage with less gasoline, but to drive more miles with the same amount of gasoline). Furthermore, any reduction in energy use may lead to part of the income becoming available for other consumption, and thus in the aggregate may even increase energy demand (another, not uncontested type of rebound effect).<sup>282</sup>

*UN involvement:* Unlike the efficiency increase to be garnered from substitution and reduced consumption, reduced consumption in the sense of an encompassing approach targeting the reduction of energy services is only a minor topic that should be strengthened at the level of UN-Energy and also in the context of climate change mitigation efforts under the UNFCCC.

### **3.4 Measures to address direct resource use conflicts (structural conflict prevention)**

The following measures address conflicts where the user groups are more or less directly involved in accessing and using the resource (in contrast to the indirect use and commercialization of resources such as oil). Following the structure of sections 1.3.1 to 1.3.3 of Part 1, we divide the measures into those related to food security, energy security, and climate change and occasionally refer to particular relevance of the trends mentioned in 1.3.4.

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282 Dimitropoulos, S. and Sorrell, S., 2006: *The Rebound Effect: Microeconomic Definitions, Extensions and Limitations*, Working Paper, the UK Energy Research Center UKERC.  
[http://www.ukerc.ac.uk/Downloads/PDF/06/0604\\_Rebound\\_microeconomic.pdf](http://www.ukerc.ac.uk/Downloads/PDF/06/0604_Rebound_microeconomic.pdf) (12.1.2008).

## **Food Security**

The concept of 'food security' has expanded from its original focus on food supply problems in the 1970s to a more explicit reference to adequate physical, social, and economic access to food at all times for a healthy life. Agricultural practices, property rights and water management are three groups of measures discussed below to highlight ideas on how to increase food security.

### **Measure 12: Organic agriculture**

*Description:* Organic agriculture (OA) is gaining importance in policies to reduce soil and water degradation and to alleviate rural poverty. Conventional agriculture focuses on increasing crop yields by nutrition inputs and reducing the pressure of pests, diseases, and weeds by pesticides. In contrast, OA aims at producing output while conserving fertile soil, clean water, and rich biodiversity, understanding crops as part of the encompassing system, and making best use of ecological principles and processes that are adequate to the local environmental situation.

*Rationale:* Conventional agriculture (CA) with its high input of fertilizers and pesticides, irrigation, and mono-cropping strategies, increasingly faces problems due to soil salinization and degradation, as well as degradation and depletion of water bodies, loss in biodiversity and increasing pest resistance. This increases poverty and threatens the sustainable livelihoods and income opportunities of farmers and agricultural workers in developing countries.

*Institutionalization and examples:* Several institutions and initiatives exist in most countries, both at the local level and globally; see, e.g., IFOAM, the International Federation of Organic Agriculture Movements.<sup>283</sup> A recent and detailed assessment of OA as a development strategy including detailed analysis of a concrete

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283 <http://www.ifoam.org> (12.1.2008).

OA initiative is given in Eyhorn (2007),<sup>284</sup> who assesses organic cotton production in India with a particular focus on farmer livelihoods and the potential to alleviate rural poverty.

*Assessment:* The strengths of OA lie primarily in its contribution to sustainable farming by conserving soil fertility and water availability and thus securing livelihoods for farming communities in the long term. Due to reduced input costs with regard to conventional agriculture, farmers also face a smaller risk of high debts in case of bad harvest. The higher crop diversity and local varieties further reduce risks related to crop failure. Reliance on local and frequent on-farm inputs and the premium for certified organic products decreases vulnerability to global price dynamics. This is one of the main links to the potential of OA in preventing migration and low-level conflicts (as described in 1.3.4, Carrying Capacity). The strengths of OA become particularly important in relation to the potentially adverse effects of climate change, in the context of which OA can provide a sustainable adaptation strategy for rural communities. Weaknesses are the sometimes lower yields that may cause lower revenues.<sup>285</sup> Due to higher prices for the crops

(certified as being organic) and lower input costs, total farm income need not be lower, however. OA is a more complex system than CA, which implies a need for ongoing and detailed extension services, good education and awareness of local conditions. In addition, some financial help often needs to be provided during the transition process to OA, while farmers learn the new approach. The higher prices for certified organic crops can only be realized after two to three years. Due attention must also be given to the development of markets for organic products. OA should only be pursued on a broader policy level in combination with due extension measures. In such a situation its potential is very promising (cf. Eyhorn 2007).<sup>286</sup>

*UN involvement:* Organic agriculture has been institutionalized in the UN FAO since 1997.<sup>287</sup> Increasing awareness of the potential of OA as a development strategy is reflected in the development of the FAO OA, since then and in recent activities of other UN branches, such as workshops and reports.<sup>288</sup> Pooling the various initiatives under the UN, making it a topic of primary importance in the FAO, and promoting

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284 Eyhorn, F., 2007: *Organic Farming for Sustainable Livelihoods in Developing Countries? The Case of Cotton in India*, ETH Zurich, Switzerland: vdf Hochschulverlag. An earlier electronic version (PhD thesis 2006) is available from [http://www.zb.unibe.ch/download/eldiss/06eyhorn\\_f.pdf](http://www.zb.unibe.ch/download/eldiss/06eyhorn_f.pdf) (12.1.2008).

285 On yields in Organic agriculture, see e.g.: Badgley, C.; Moghtader, J.; Quintero, E.; Zakem, E.; Chappell, M.; Avilez-Vazquez, K.; Samulon, A. and Perfecto, I., 2007: *Organic agriculture and the global food supply*, Renewable Agriculture and Food Systems, 22(2): 86–108.

Drinkwater LE, Wagoner, P.; Sarrantonio, M., 1998: *Legume-based Cropping Systems Have Reduced Carbon And Nitrogen Losses*, Nature 396: 262-265.

Maeder, P.; Fliessbach, A.; Dubois, D.; Gunst, L.; Fried, P. and Niggli, U., 2002: *Soil Fertility and Biodiversity in Organic Farming*, Science 296: 1694-1697.

Parrott, N. and Marsden, T., 2002: *The Real Green Revolution. Organic and Agroecological Farming in the South*, Greenpeace Environmental Trust, London, <http://www.greenpeace.org.uk/MultimediaFiles/Live/>

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[FullReport/4526.pdf](#) (12.1.2008) (contains a review of some case studies).

Eyhorn, F., 2007: *Organic Farming for Sustainable Livelihoods in Developing Countries? The Case of Cotton in India*, ETH Zurich, Switzerland: vdf Hochschulverlag. An earlier electronic version (PhD thesis 2006) is available from [http://www.zb.unibe.ch/download/eldiss/06eyhorn\\_f.pdf](http://www.zb.unibe.ch/download/eldiss/06eyhorn_f.pdf) (12.1.2008).

286 Eyhorn, F., 2007: *Organic Farming for Sustainable Livelihoods in Developing Countries? The Case of Cotton in India*, ETH Zurich, Switzerland: vdf Hochschulverlag. An earlier electronic version (PhD thesis 2006) is available from [http://www.zb.unibe.ch/download/eldiss/06eyhorn\\_f.pdf](http://www.zb.unibe.ch/download/eldiss/06eyhorn_f.pdf) (12.1.2008).

287 See, for example, the FAO International Conference on Organic Agriculture and Food Security, May 2007, <ftp://ftp.fao.org/paia/organicag/ofis/OFS-2007-5.pdf> (12.1.2008).

288 E.g., by the UN-DESA/UNEP under the Sustainable Consumption and Production (SCP) initiatives, <http://webapps01.un.org/dsd/scp/public/Welcome.do> (12.1.2008) or UNESCAP, <http://www.unescap.org/rural/doc/OA/OA-Bgrd.htm> (12.1.2008).

it as an adaptation strategy in the context of the UNFCCC would be crucial to support wider implementation of this measure.

**Measure 13:**  
**Participatory development of property rights**

*Description:* Establishing and assigning schemes of clear, reliable and enforceable property rights is a promising approach to dealing with aspects of conflicts related to externalities, resource over-use, and environmental degradation that can be attributed to undefined property rights or situations with intrinsic incentives for over-use (e.g., the tragedy of the unmanaged commons). Property rights in the context of natural resources and the environment can take several forms, such as access or withdrawal rights, rights to manage, or exclusion and alienation rights. Those rights can also have varying degrees of strength, reliability and scope, with or without temporal or spatial restrictions. It is important, however, that traditional and communal property rights (often unwritten) be carefully considered when analyzing and developing property rights institutions. Otherwise there is a danger of overly emphasizing legally binding state and private property rights. To prevent conflict, property rights should be developed in a participatory manner, i.e., the resource user groups must have a say in how the property rights are defined and enforced.

*Rationale:* Clear property rights can help to assign responsibility and to internalize external effects. Lack of clear property rights can – but need not – be accompanied by lack of investment in and care for the respective resources, with precarious livelihood conditions due to long-term uncertainty and due to legally weak and non-claimable standing in case of encroachments by stronger parties.

*Institutionalization and examples:* Many forms of institutionalized property rights exist in all nations. The currently most prominent example

of property rights establishment is the Kyoto-Protocol,<sup>289</sup> where the use of the greenhouse gas absorption capacity of the atmosphere is regulated and responsibilities are assigned. Other examples refer to quotas for fisheries or for water use. In regards to marine resources, the Exclusive Economic Zone (EEZ)<sup>290</sup> gives a littoral state certain rights over the use of marine resources in the 200 nautical miles (370 km) extending out from its coast. Established in 1982 by the UN Convention on the Law of the Sea, it was an important step in overcoming fishing conflicts. Nevertheless, the exact extent of the EEZ is often a source of conflict between maritime states (e.g., the cod war between the UK and Iceland, or the fish conflicts in the South China Sea). Property rights systems that enhance land access of poor rural households is effective in increasing the wealth of families as well as of the overall economy, disproportionately more than if it is ascribed to wealthier households. Furthermore, assigning land rights to women has a significant effect on household food consumption and educational attainments.<sup>291</sup> See Somanathan and Sterner<sup>292</sup> for more details of property rights policies in developing countries.

*Assessment:* The strength of policies establishing clear and enforceable property rights lies in the security they provide and the clear responsibilities of a legal quality, the internalization of external effects, and the an

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289 United Nations Framework Convention on Climate Change, 2005: *The Kyoto Protocol*, [http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php) (12.1.2008).

290 United Nations Convention on the Law of the Sea – Part V: Exclusive Economic Zone, [http://www.un.org/Depts/los/convention\\_agreements/texts/unclos/part5.htm](http://www.un.org/Depts/los/convention_agreements/texts/unclos/part5.htm) (12.1.2008).

291 Carter, M. R., 2003: *Designing land and property rights reform for poverty alleviation and food security*, paper presented at 29th Session of the Committee on World Food Security, Rome, May 12, - 16, 2003, <http://www.fao.org/DOCREP/006/I0415T/j0415t06.htm> (12.1.2008).

292 Somanathan, E. and Sterner, T. (forthcoming): *Environmental Policy Instruments and Institutions in Developing Countries*, in: Toman M. and Lopez R. (eds.): *New Options for Sustainable Development*, Oxford: Oxford University Press.

often increased efficiency in management and use. When new property rights systems are established, however, the presence of previously established traditional and informal systems should be accounted for. Such systems need not necessarily be less efficient than a newly designed 'modern' system in dealing with the specific situation they developed and to which they were adapted over some time-span. In fact, it seems that a disruption of traditional property rights systems is one of the key factors in escalating low-level land conflicts in many developing countries.<sup>293</sup> Regarding the trends mentioned in 1.3.4, property rights issues mainly relate to cultural factors, carrying capacity and economic trends. For more information, see the following footnote.<sup>294</sup>

*UN involvement:* Property rights are a transversal issue that has a place in many initiatives, e.g., those of the FAO<sup>295</sup> and the UNDP.<sup>296</sup> More

emphasis might be given, however, to systematically accounting for the importance of this issue.

#### Measure 14: Integrated Water Resource Management

*Description:* Integrated Water Resource Management (IWRM) has become widely accepted as an ideal approach to water management. It consists of the following principles: 1) water demand management (see Measure 15 below), 2) basin-wide planning, instead of according to political boundaries, 3) integration of water uses in different economic sectors, i.e., an inter-sectoral approach, as well as considering water for ecosystem sustainability, and 4) the principles of subsidiarity and stakeholder participation.<sup>297</sup>

*Rationale:* Water has multiple uses. When considered only as a resource within one economic sector or within one political entity, its diverse uses and characteristics fail to be fully taken into account. Within a river basin, for example, the use in one area generally affects the use downstream, at times leading to tensions or even conflicts.

*Institutionalization and examples:* The Global

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293 Concerning Sudan, see Part 2 case study Darfur.

294 De Soto, H. and Cheneval F., 2006: *Realizing Property Rights*, Swiss Human Rights Book, vol. I, <http://www.swisshumanrightsbook.com/index.html?frameleft.html&2> (12.1.2008).

Unruh, D.J., 2003: *Land Tenure and Legal Pluralism in the Peace Process. Peace and Change*, 28(3): 325-376.

Unruh J.D., 2002: *Land Dispute resolution in Mozambique: Evidence and Institutions of Agroforestry technology Adoption*, in: Meinzen-Dick, R.; Knox, A.; Place, F. and Swallow, B., 2002: *Innovation in natural Resource management. The Role of Property Rights and Collective Action in Developing Countries*, Johns Hopkins University Press. Published for the International Food Policy Research Institute.

295 CGIAR Systemwide Program on Collective Action and Property Rights <http://www.capri.cgiar.org/> (12.1.2008).

Sustainable Agriculture and Rural Development, rural property rights, <ftp://ftp.fao.org/SD/SDA/SDAR/sard/SARD-rural-property-rights%20-%20english.pdf> (12.1.2008).

FAO, 1999: *Use of Property Rights in Fisheries Management*, Fisheries Technical Paper 404/1, <http://www.fao.org/DOCREP/003/X7579E/X7579E00.HTM> (12.1.2008).

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Stewart, C., 2004: *Legislating for property rights in fisheries*, Development Law Service of the FAO legal office, Rome, <http://www.fao.org/docrep/007/y5672e/y5672e00.htm> (12.1.2008).

Helfer, L. R., 2004: *Intellectual property rights in plant varieties International legal regimes and policy options for national governments*, Development Law Service of the FAO legal office, Rome, <http://www.fao.org/docrep/007/y5714e/y5714e00.htm> (12.1.2008).

296 UN Commission on the Legal Empowerment of the Poor: Progress Report of Working Group 2: Property Rights, [http://legalempowerment.undp.org/pdf/WG2\\_Progress\\_Report.pdf](http://legalempowerment.undp.org/pdf/WG2_Progress_Report.pdf) (12.1.2008).

297 Luzi, S., 2007: *International River Basins: Management and Conflict Perspectives*, ISN Publishing House, <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=30002> (12.1.2008).



Water Partnership has developed a toolbox<sup>298</sup> that provides a compendium of good practices related to the principles of IWRM. The toolbox also offers guidelines on how to prioritize IWRM approaches, and numerous case studies for illustration purposes. Further examples inspired by the IWRM approach are the principles developed by the World Commission on Dams,<sup>299</sup> which were later developed by the UNEP Dams and Development Project.<sup>300</sup> Various national water policies, e.g., that of Egypt, have included principles of IWRM<sup>301</sup>.

*Assessment:* The strengths of IWRM are based on its potential to fill gaps left open by partial, less comprehensive approaches. It enjoys widespread support and thereby serves as a vision and benchmark for developing water management. It directly supports river basin negotiations and cooperation as it calls for a basin-wide approach. As far as its weaknesses are concerned, IWRM has been criticized for being too broad and not specific enough. Since many water policies in developed countries do not correspond to IWRM principles, it has also been criticized as leading to double standards: one for the developing countries (that of IWRM) and one for developed countries. Tony Allan has also pointed to the danger of IWRM focusing only on the basin level, thereby missing the opportunities of global 'virtual water' trade (cf. Measure 16 below).<sup>302</sup>

*UN involvement:* IWRM is firmly anchored in the UN system, in various reports, programs, and conferences (e.g., Mar Del Plata Water Conference 1977, Rio Summit 1992, Agenda

21).<sup>303</sup> FAO has a strong focus on IWRM<sup>304</sup>, and the Consultative Group on International Agricultural Research (of which the FAO, UNEP, and the UNDP are members) also has a strong focus on IWRM.<sup>305</sup> UNEP, WMO, and the UNDP are partners of The Global Water Partnership<sup>306</sup> and are thus closely tied in with efforts to use IWRM. The concept is also used in the World Water Assessment Programme.<sup>307</sup> 'UN-Water' is an UN inter-agency mechanism for following up on water-related decisions, aiming to support member states in water and sanitation goals; together with the UN Secretary-General's Advisory Board on Water and Sanitation<sup>308</sup> it also deals with many IWRM aspects. The UN University worked together with the UN Department of Economic and Social Affairs (DESA) to develop training programs on IWRM<sup>309</sup>.

298 <http://www.gwptoolbox.org/> (12.1.2008).

299 <http://www.irn.org/wcd/> (12.1.2008).

300 <http://www.unep.org/dams/WCD/> (12.1.2008).

301 Ministry of Water Resources and Irrigation <http://www.mwri.gov.eg/> (12.1.2008).

302 Luzi, S., 2007: *International River Basins: Management and Conflict Perspectives*, ISN Publishing House, <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=30002> (12.1.2008). Originally published as: Luzi, S., 2007: *Les bassins hydrographiques internationaux : conflits et gestion des ressources hydriques*, Les Cahiers de la Sécurité, Numéro 63.

303 Snellen, W. B. and Schrevel, A., 2004: *IWRM : for sustainable use of water 50 years of international experience with the concept of integrated water management*, [http://www.fao.org/ag/wfe2005/docs/IWRM\\_Background.pdf](http://www.fao.org/ag/wfe2005/docs/IWRM_Background.pdf) (12.1.2008).

304 Snellen, W. B. and A. Schrevel, 2004: *IWRM: for sustainable use of water 50 years of international experience with the concept of integrated water management*, [http://www.fao.org/ag/wfe2005/docs/IWRM\\_Background.pdf](http://www.fao.org/ag/wfe2005/docs/IWRM_Background.pdf) (12.1.2008).

305 E.g., The Challenge of Integrated Water Resource Management for Improved Rural Livelihoods: Managing Risk, Mitigating Drought and Improving Water Productivity in the Water-Scarce Limpopo Basin, [http://www.waterandfood.org/index.php?id=241&print=1&no\\_cache=1](http://www.waterandfood.org/index.php?id=241&print=1&no_cache=1) (12.1.2008).

International Water Management Institute, 2007: *Integrated Water Resources Management in Ferghana Valley* (Iwrm-Ferghana), [http://www.iwmi.cgiar.org/Research\\_Impacts/Research\\_Themes/BasinWaterManagement/WRM/index.aspx](http://www.iwmi.cgiar.org/Research_Impacts/Research_Themes/BasinWaterManagement/WRM/index.aspx) (12.1.2008).

306 <http://webapps01.un.org/dsd/partnerships/public/partnerships/1346.html> (12.1.2008).

307 <http://www.unesco.org/water/wwap/> (12.1.2008).

308 <http://www.unsgab.org/> (12.1.2008).

309 The UN Water Virtual Learning Centre <http://wvlc.uwaterloo.ca/> (12.1.2008).

## Measure 15: Water Demand Management

*Description:* Water Demand Management (WDM) refers to measures to control or influence the amount of water used, and to make better use of water that is already available by reducing physical and/or economic waste. WDM includes measures to reuse water, increase the efficiency of water use (e.g., drip irrigation instead of flood irrigation), or reallocate water from agricultural practices of low economic return to those of high economic return. Changing consumption patterns, e.g., eating less meat, is the most far-reaching WDM. It thus differs from Water Supply Management (WSM) (dams, diversions), which takes increasing and existing consumption levels as given and focuses entirely on meeting those without questioning the underlying reasons and potentials for reduction. WSM has had an enormous impact: between 1950 and 2000, some 40,000 large dams were built world-wide, forcing millions of people from their homes.

*Rationale:* There is a finite amount of fresh water on the planet, and desalinization is still too expensive for agricultural purposes. Furthermore, besides the total finite amount of available water, the very unequal spatial and temporal distribution of water makes water scarcity a challenge in regions such as North Africa and the Middle East. In the long term, WDM is more sustainable than supply-side management, which faces physical, social, and economic limitations.

*Institutionalization and examples:* Among the existent ideas for institutionalizing WDM are proposals to integrate it with supply-side management, by setting this as a criterion in national or international water commissions. A good example of WDM and its institutionalization on the national level can be found in Israel (Mekorot Water Company).<sup>310</sup> On the international level, similar to the World

Bank Operational Policy 7.50<sup>311</sup> (making international cooperation a condition before supporting water development projects on an international river), the World Bank and agencies such as UNDP involved in developing international river treaties and commissions could demand that at least as much support should go into WDM as it does into WSM projects. Examples of initiatives to support WDM are the Regional Water Demand Initiative for the Middle East and North Africa (WaDI*mena*),<sup>312</sup> the IUCN Regional Office for Southern Africa (IUCN Rosa),<sup>313</sup> and further examples cited in the literature (see Brooks et al.<sup>314</sup>) and the WCA infoNET Community Directory on 'Water Conservation and Use in Agriculture'.<sup>315</sup>

*Assessment:* Among the strengths of WDM is the fact that it is one of the most promising approaches for dealing with water scarcity in the longer term, thereby helping to prevent conflicts over scarce water resources. As far as its weaknesses are concerned, WDM provides limited incentives for policy-makers interested in gaining popular credit for large-scale WSM projects. WDM may also induce conflicts when it addresses reallocation questions. Any economic measures that could help induce WDM would also have to consider cultural sensitivities (e.g., the perception that water is a gift of God and thus cannot have a price). In international river negotiations, there are so far no incentives for WDM, as that would imply a

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310 <http://www.mekorot.co.il/Eng/Pages/default.aspx> (12.1.2008).

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311 World Bank, 2001, Projects on International Waterways. The World Bank Operational Manual Operational Policies:

<http://wbln0018.worldbank.org/Institutional/Manual/OpManual.nsf/0/5F511C57E7F3A3DD8525672C007D07A2?OpenDocument> (12.1.2008).

312 [http://www.idrc.ca/en/ev-57064-201-1-DO\\_TOPIC.html](http://www.idrc.ca/en/ev-57064-201-1-DO_TOPIC.html) (12.1.2008).

313 <http://www.iucnrosa.org.zw/programmes/water.html> (12.1.2008).

314 Brooks, D. B.; Rached, E. and Saade, M., 1997: *Management of Water Demand in Africa and the Middle East: Current Practices and Future Needs*, [http://www.idrc.ca/en/ev-9316-201-1-DO\\_TOPIC.html](http://www.idrc.ca/en/ev-9316-201-1-DO_TOPIC.html) (12.1.2008).

315 <http://www.wca-infonet.org/iptrid/infonet/index.jsp> (12.1.2008).

reduction of claims on water ‘already used’. Finally, countries facing economic water scarcity (i.e., where enough water is naturally available, but there is no infrastructure to use it, see figure 5), such as in Sub-Saharan Africa, need a phase of WSM before or in parallel to developing WDM.

*UN involvement:* See IWRM measure 14 above. In addition, the UN Human Settlements Programme used an urban WDM strategy in four pilot cities.<sup>316</sup>

#### Measure 16: Regulation of ‘virtual water’ trade

*Description:* ‘Virtual water’<sup>317</sup> refers to the water required in the production of commodities, such as food. As the production of food is very water-intensive, it is easier to transport water ‘hidden’ in food than it is to transport water in its liquid form (approx. 1000 liters for a kg of bread, and 10,000 liters for a kg of meat). Tony Allan<sup>318</sup> sees this as one of the key factors why water-scarce countries do not necessarily go to war over water – they can import food. The US, Canada, France, Argentina, Thailand, and Brazil contribute to about 80 percent of the global net virtual water export – and about 50 percent comes alone from North America.<sup>319</sup> Large net

virtual water importers are Sri Lanka, Japan, the Netherlands, South Korea, China, Spain, Egypt, Germany, and Italy.<sup>320</sup> At the same time, the MENA (Middle East and North Africa) countries import large quantities of virtual water relative to their total consumption.<sup>321</sup>

*Rationale:* Different quantities of water are used when food is produced in different climatic zones. It is estimated that about 8 percent less water is used globally due to the availability of virtual water.<sup>322</sup> However, the rationale for virtual water is not global water saving, but that it constitutes a way to compensate for regional water scarcity so that nations can use their limited water resources for domestic consumption or high-value products instead of for wheat production. Due to the fear of becoming dependent on the world food market, water-scarce food-importing countries have at times followed a policy of food self-sufficiency at levels that surpassed economic rationale.

*Institutionalization and examples:* The practice of virtual water trade is widespread and of increasing importance. Egypt, for example, imports about 40 percent of its cereals, which is equivalent to about 15 km<sup>3</sup>/year, or 30 percent of the water it is presently using.<sup>323</sup> It is estimated that the global food market in the year 2025 will have an equal economic value to the

316 UN Habitat, Urban Water Demand Management (WDM).

<http://www.unhabitat.org/content.asp?typeid=19&catid=464&cid=3183&activeid=3182> (12.1.2008).

317 “Virtual water: this is the water that is used to produce a commodity or a service. Examples of such commodities include food and industrial products. The importing or exporting of such products results in the importing or exporting of virtual water.” [http://www.unesco.org/water/wwap/facts\\_figures/sharing\\_waters.shtml](http://www.unesco.org/water/wwap/facts_figures/sharing_waters.shtml) (12.1.2008); see also: Water Shed Atlas:

<http://www.iucn.org/themes/wani/atlant/html/gm19.html> (12.1.2008).

318 Allan, J.A., 2001: *Virtual Water – Economically Invisible and Politically Silent: A Way to Solve Strategic Water Problems*, International Water and Irrigation Journal, November 2001.

319 Yang, H., 2004: *Virtual Water Trade*, Corporate Knights, the Canadian Magazine for Responsible Business,

[http://www.corporateknights.ca/content/page.asp?name=virtual\\_water\\_trade](http://www.corporateknights.ca/content/page.asp?name=virtual_water_trade) (12.1.2008).

320 Kalaugher, L., Virtual-water trading council could benefit developing countries. Environmental Research Web.

<http://environmentalresearchweb.org/cws/article/futures/27271> (12.1.2008).

321 Yang, H. and A. Zehnder, 2002: *Water Scarcity and Food Import - A Case Study for Southern Mediterranean Countries*, World Development, 30(8): 1413-1430.

322 Horlemann, L and S. Neubert, 2007: *Virtual Water Trade, A realistic concept for resolving the water crisis?* German Development Institute,

[http://www.waterfootprint.org/Reports/Horlemann\\_&\\_Neubert\\_2007.pdf](http://www.waterfootprint.org/Reports/Horlemann_&_Neubert_2007.pdf) (12.1.2008).

323 Mason, S., 2004: *From Conflict to Cooperation in the Nile Basin*, Ph.D. dissertation, ETH Zurich, Center for Security Studies,

<http://www.isn.ethz.ch/pubs/ph/details.cfm?id=7387> (12.1.2008).

present oil market (approx. US\$ 450 billion per year), and that about 25 percent of this will be driven by water scarcity and the need for water-scarce countries (e.g., in North Africa and the Near East) to import food.<sup>324</sup> Therefore, ideas are being developed to prevent food exporters from setting conditions on food importers – either by employing a private<sup>325</sup> go-between who buys the food from the food exporters and then resells it without any political conditions being imposed on the food importers, or via an institutional<sup>326</sup> broker. The idea of the ‘Virtual Water Trading Council’ (to be part of the WTO) is to set conditions that would ensure that the water saved through virtual water is used for sanitation and health measures.<sup>327</sup> The third idea is to shape WTO tariff levels and minimum access through water conservation requirements, rather than just to increase competitiveness.<sup>328</sup>

*Assessment:* On the positive side, virtual water can ease domestic pressure on water resources, as well as alleviate tensions over shared rivers that could otherwise have escalated. So far, and as a weakness, virtual water requires sufficient employment alternatives in the non-agricultural sectors in the food-importing countries, and a positive balance of trade is required to ensure the funds are available to import food. Thus, it is an option for rich water-scarce countries (North

Africa, Middle East), but not for economically weak water-scarce countries. The dependence on the world food market, furthermore, is seen as one of the greatest weaknesses from the perspective of the food-importing countries. Unlike the other water-related measures that mainly aim at carrying capacity trends (1.3.4), this measure is closely linked to economic trends as well.

*UN involvement:* Virtual water does not yet seem to be a major topic within the UN system, even if it is addressed occasionally, e.g., in the UN world water development report 2<sup>329</sup> or the UN University.<sup>330</sup>

#### Measure 17: Transboundary freshwater regimes

*Description:* International freshwater treaties<sup>331</sup> and river commissions are two key ways of supporting cooperation over shared water resources in a joint river basin. Transboundary regimes generally focus on issues such as technical cooperation on infrastructure projects, joint water quality control, or water quotas for the allocation of water flow. International river commissions generally start with operational activities, implementing treaties and agreements signed by the respective states, but as they evolve, they generally take on greater decision-making competence and autonomy (e.g., the Rhine river commission).

*Rationale:* Worldwide, about 260 river basins cross international boundaries. The need for joint commissions and treaties to regulate cross-border issues is evident, especially in regions

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324 Yang, H. and Zehnder, A., 2002: *Water Scarcity and Food Import - A Case Study for Southern Mediterranean Countries*, World Development, 30(8): 1413-1430.  
Zehnder, A., 1997: *Wasser ein knappes Gut?*, EAWAG News 43, Dübendorf, Switzerland.

325 Yang, H. and Zehnder A., 2002: *Water Scarcity and Food Import - A Case Study for Southern Mediterranean Countries*, World Development, 30(8): 1413-1430.

326 Ohlsson, L., 1999: *Environment Scarcity and Conflict, A study of Malthusian concerns*, Department of Peace and Development Research Göteborg University, Göteborg.

327 Kalaugher, L., 2007: *Virtual-water trading council could benefit developing countries*, <http://environmentalresearchweb.org/cws/article/futures/27271> (12.1.2008); see also [http://www.unisa.edu.au/waterpolicylaw/projects/virtual\\_water.asp](http://www.unisa.edu.au/waterpolicylaw/projects/virtual_water.asp) (12.1.2008).

328 Gualtieri1, A. G., 2007: *Legal Implications of Trade in ‘Real’ and ‘Virtual’ Water Resources*, [http://www.ielrc.org/activities/workshop\\_0704/content/d0711.pdf](http://www.ielrc.org/activities/workshop_0704/content/d0711.pdf) (12.1.2008).

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329 UNESCO, 2006: *Water, a shared responsibility*, The United Nations world water development report 2, Chapter 11: Sharing water, Paris / Berghahn Books, Oxford: UNESCO Publishing.

330 Nakayama, M.; Jansky, L. and Furuyashiki, K., International Water Systems Project of the United Nations University. <http://202.253.138.71/ENV/Files/LEAD-Nakayama-abstract.pdf> (12.1.2008).

331 <http://www.internationalwaterlaw.org/index.html> (12.1.2008); see also [http://www.africanwater.org/int\\_water\\_law.htm](http://www.africanwater.org/int_water_law.htm) (12.1.2008).

where water is scarce, or where there is a danger of water pollution.

*Institutionalization and examples:* The International Commission for the Protection of the Rhine<sup>332</sup> remains one of the most developed international river commissions, and is often taken as a model for other basins. Other examples are the Mekong River Commission,<sup>333</sup> the Nile Basin Initiative<sup>334</sup> (which is not yet a formalized commission), the Lake Chad Basin Commission,<sup>335</sup> or the International Boundary and Water Commission<sup>336</sup> between Mexico and the US. The United Nations Convention on the Law of the Non-navigational Uses of International Watercourses<sup>337</sup> of 1997 remains the greatest effort so far to provide legal guidance to transboundary basin management, yet it is often ambiguous, and many of its points are controversial; there are also no effective enforcement mechanisms, thus riparian states are often free to select the legal principles they find most useful.<sup>338</sup> On the positive side, the World Bank and UNDP have been very active in supporting the development of transboundary basin regimes, e.g., in the Nile or Indus.

*Assessment:* Transboundary freshwater regimes are crucial for communication and cooperation between the affected riparian countries. Often they are very helpful in developing a joint management culture and assisting water policy harmonization between the riparian states. The key question is how much autonomy and resources they enjoy, since there is a danger that they might become overly bureaucratic and ineffective. It is also important that all riparian states, or as many as possible, should be active

members – which is not always the case.

*UN involvement:* UNDP has established a global trust fund for the Transboundary River Basin Initiative (TRIB)<sup>339</sup> to support dialog between riparian countries over shared water resources. The UNDP Global Environmental Facility (GEF) also has a focal area on international waters,<sup>340</sup> often together with the World Bank. Both of these institutions are involved in developing river management regimes in numerous regions (see above). UNESCO has published a report on sharing water.<sup>341</sup> Regional branches of the UN have also supported transboundary river management, e.g. the UN Economic and Social Commission for Western Asia.<sup>342</sup>

#### Measure 18: Access to markets of the developed countries

*Description:* Trade barriers protect domestic industries and harm foreign producers. In a globalized world, developing countries would benefit from greater access to the markets of developed countries, as this helps generate wider income opportunities. This applies in particular to populations that depend on agriculture, as market barriers such as subsidies, quotas and tariffs are still widely present in this sector.

*Rationale:* The opening up of markets of developed countries through a decrease in agricultural production subsidies and trade barriers gives developing countries the opportunity to diversify their economies through

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332 <http://www.iksr.org/index.php?id=295> (12.1.2008).

333 <http://www.mrcmekong.org/> (12.1.2008).

334 <http://www.nilebasin.org> (12.1.2008).

335 <http://www.oieau.fr/cicdd/contributions/atriob/resume/rcblt.htm> (12.1.2008).

336 <http://www.ibwc.state.gov/> (12.1.2008).

337 [http://untreaty.un.org/ilc/texts/instruments/english/conventions/8\\_3\\_1997.pdf](http://untreaty.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf) (12.1.2008).

338 Trollalden, J. M., 1992: *International Environmental Conflict Resolution: The Role of the United Nations*, Washington DC: World Foundation for International Development.

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339 <http://www.undp.org/water/priorityareas/trans.html> (12.1.2008).

340 <http://www.undp.org/gef/05/portfolio/iw.html> (12.1.2008).

341 UNESCO, 2003: *Sharing Water*, [http://www.waterfootprint.org/Reports/wwdr2\\_ch\\_1\\_1.pdf](http://www.waterfootprint.org/Reports/wwdr2_ch_1_1.pdf) (12.1.2008).

342 UN-ESCWA, 2007: Training on Negotiations and Dispute Resolution Over International Shared Water Resources in Jordan <http://www.escwa.org.lb/information/meetingdetails.asp?referenceNum=496E> (12.1.2008).

more equitable market access.

*Institutionalization and examples:* Besides the WTO, due to their emphasis on market liberalization crucial institutions for such measures are bilateral and regional trade agreements, such as MERCOSUR (Common Market for South and Central America), NAFTA (North American Free Trade Agreement), EFTA (European Free Trade Association), the World Bank and the IMF's Structural Adjustment Programs.

*Assessment:* In an ideal, globalized and free market economy, symmetric conditions should apply to both developed and developing countries. Abolishing subsidies and opening up agricultural markets of developed countries to the producers in developing countries would establish a level-playing-field and benefit the developing countries' economies (e.g. in cotton, where heavy subsidies in the US harm cotton-producing developing countries). On the other side, protecting emerging industries by restrictions can help build up a diversified industrial sector before it can survive in a competitive global environment to contribute to sustainable economic development. Thus, in reality, gains from global trade liberalization draw a mixed picture, particularly when they are assessed in model calculations for scenarios related to the Doha-round negotiations. Developing countries may make some small gains (by increased sales) but are likely to incur larger losses (by losses in tariffs that comprise an important part of government revenues in many developing countries through de-industrialization, and also due to a loss in policy space).<sup>343</sup> In order to achieve poverty reduction

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343 Doha Round and Developing Countries: *Will the Doha deal do more harm than good?* RIS Policy Briefs 22, April 2006, Research and Information System for Developing Countries, <http://ase.tufts.edu/gdae/Pubs/rp/HiddenCostsApr06.htm> (12.1.2008); Hertel, T.W. and Winters, L.A. (eds.) 2005: *Poverty and the WTO: Impacts of the Doha development agenda*. World Bank,

in developing countries, the liberalization of agricultural markets is often seen as a viable solution. But there, too, some countries may lose.<sup>344</sup> Trade liberalization along the lines proposed in Doha may thus not be an optimal policy, while specific and targeted measures, such as access to international markets for organically produced products, have considerable potential.

*UN involvement:* FAO Economic and Social Development Department<sup>345</sup>; UN Conference on Trade and Development (UNCTAD)<sup>346</sup>; UN ECOSOC Regional Commissions.<sup>347</sup>

## Climate Change

Dealing with climate change involves two tracks. On the one hand, there is mitigation, i.e., reducing greenhouse gas emissions or increasing carbon sequestration to reduce climate change and its effects. On the other hand, there is adaptation, i.e., strategies for dealing with the unavoidable effects of climate change as far as it is already taking place and will occur in the future due to past emissions. Much literature is

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[http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2005/12/28/000090341\\_20051228134920/Rendered/PDF/347720PAPER0Po101OFFICIALOUSE0ONLY1.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2005/12/28/000090341_20051228134920/Rendered/PDF/347720PAPER0Po101OFFICIALOUSE0ONLY1.pdf) (12.1.2008).  
Polaski, S., 2006: *Winners and Losers: Impact of the Doha Round on Developing Countries*, Carnegie Endowment for International Peace (CEIP), [http://www.policyinnovations.org/ideas/policy\\_library/data/01301](http://www.policyinnovations.org/ideas/policy_library/data/01301) (12.1.2008).  
344 Food and Agriculture Organization (FAO), 2007: *The State of Agricultural Commodity Markets 2006*, Economic and Social Department. <http://www.fao.org/docrep/009/a0950e/a0950e00.htm> (12.1.2008).  
345 <http://www.fao.org/es> (12.1.2008).  
346 UN Conference on Trade and Development (UNCTAD), 2007, UNEP and UNCTAD hold international symposium on environmental requirements and market access. 3 October 2007. <http://www.unctad.org/Templates/Page.asp?intItemID=4357&lang=1> (14.1.2008).  
347 UN Economic and Social Council (ECOSOC) Regional Commissions. [http://www.un.org/esa/progareas/macro\\_fin.html](http://www.un.org/esa/progareas/macro_fin.html) (14.1.2008)

available on mitigation and adaptation, the primary reference being the Fourth Assessment Report of the IPCC.<sup>348</sup> For concrete measures, we refer to this literature. Here, we will only describe general aspects of mitigation and adaptation strategies. Due to the prominent role of fossil fuel use in climate change, many of these strategies are linked to strategies for energy security, reduced energy consumption, and general changes in consumption patterns (cf. measures 10 and 11 above).

#### Measure 19: Mitigation – the Kyoto Protocol<sup>349</sup>

*Description:* Mitigation subsumes any strategy to reduce future climate change, be it by reducing emissions of greenhouse gases or by sequestration of greenhouse gases from the atmosphere.

*Rationale:* Reducing climate change and its potentially negative effects can help reduce pressure on ecosystems and the corresponding negative effects on human security as described in part 1.

*Institutionalization and examples:* Climate change mitigation is the main goal of the Kyoto Protocol. This involves the global and – for nations that have ratified it – binding agreement on greenhouse gas emission reductions by 2012. Almost all industrialized nations have agreed to reduce emissions by 8 percent on aggregate by then. The Kyoto Protocol leaves large freedom on how to reach these goals. Furthermore, it promotes economic incentives. Whether these goals can be reached is still unclear. It is also unclear which type of agreement will follow, a fact that has given rise to ongoing discussions and negotiations. An important step would be to get the major emitters US and Australia on board. After 2012, some of the large emitters among developing countries (mainly China, India, and Brazil) are expected to agree to some

goals as well. The Fourth Assessment Report of the IPCC, Working Group III, contains a very detailed and encompassing assessment of concrete potential mitigation strategies.

*Assessment:* Although it is criticized for its inability to bring about significant reductions and its weak goals, the Kyoto Protocol is the only global climate policy initiative. Strengthening it considerably can be an effective path to achieve significant emission reductions and thus to mitigate climate change in the coming decades. It is, however, generally agreed that drastic emission reductions have to be realized in the near future to keep temperature increase below two degrees Celsius, a widely accepted upper level, below which disastrous climate change might be avoided. In order to achieve this goal, it is necessary that all developed and some developing nations assume much more stringent reduction goals over the next two decades.

*UN involvement:* The actions of the UN on climate change mitigation are primarily pooled under the institutions in the context of the UN Framework Convention on Climate<sup>350</sup>, which administers the Kyoto Protocol and its flexibility mechanisms. The most important task to be achieved in this context by the UN in the near future is to reach global agreement on stringent mitigation actions after 2012, when the first commitment period of the Kyoto Protocol ends.

#### Measure 20: Adaptation

*Description:* Adaptation refers to strategies that seek to reduce the vulnerability to climate change impacts by strengthening coping capacities and encouraging potential opportunities.

*Rationale:* There is increasing consensus that a certain level of climate change is inevitable. Based on this insight, adaptation has gained importance in the discussion. Early development of adaptation strategies reduces vulnerability to

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348 <http://www.ipcc.ch/> (12.1.2008).

349 <http://www.unfccc.int> (12.1.2008).

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350 <http://www.unfccc.int> (12.1.2008).

climate change and its potential negative effects as described in part 1. Such strategies can thus alleviate the transition to unavoidable societal changes without destabilization, loss of livelihoods for a larger number of people, or even open conflict. Adaptation thus strongly relates to the trends in carrying capacity (3.1.4).

*Institutionalization and examples:* Adaptation has become a topic of increasing importance in the annual conference and meetings of the parties COP/MOP to the Kyoto Protocol. Main challenges, in particular for developing countries, include the availability of resources for adaptation measures and how to build adaptive capacity. The Fourth Assessment Report of the IPCC, Working Group II, states that “A wide array of adaptation options is available, but more extensive adaptation than is currently occurring is required to reduce vulnerability to future climate change. There are barriers, limits and costs, but these are not fully understood.” Concrete adaptation measures include changes in farming practices (e.g. to organic farming, see measure 12) due to changes in local climate, building dams against rising sea levels, but also organized resettlement for inhabitants of regions that will not be inhabitable in the future (e.g., due to flooding, a consequence that is especially pressing for small island states such as the Maldives or Tuvalu). Detailed information on adaptation can be found in the Fourth Assessment Report of the IPCC, Working Group II.<sup>351</sup>

*Assessment:* Although it does not address the cause of climate change, adaptation is a necessary measure, given that some climate change is unavoidable, even under if all emissions would be stopped now. The strength of early adaptation is to allow a smooth transition to the new situation, thus potentially reducing vulnerability to destabilization, disruption and conflict. Adaptation is, however, in many cases only a transition strategy, especially if climate change accelerates in the future and adaptive capacity is overrun. The Fourth Assessment

Report of the IPCC, Working Group II, states: “However, adaptation alone is not expected to cope with all the projected effects of climate change, and especially not over the long run, as most impacts increase in magnitude.” Stringent mitigation policies (cf. Measure 19) are thus unavoidable even though promising adaptation activities are already under way.

*UN involvement:* The UN primarily addresses adaptation in the context of the Kyoto Protocol to the UNFCCC, but also in other branches, especially in the context of its development work. Adaptation is gaining importance, and it is crucial to account for the prominent role that adaptation will necessarily play in the future by adequately incorporating it in successor agreements to be reached for the time after 2012.

### **3.5 Measures to address highly escalated conflicts (operational conflict prevention)**

The following measures deal with complex, highly escalated conflicts, where environmental factors play an important role, even if they are not necessarily among the main conflict causes. Taking these into account is viewed as an important dimension of operational conflict prevention.

#### **Dialog-oriented measures**

Dialog-oriented measures involve contacts between governmental actors (Track 1), non-official but influential representatives of the conflict parties (Track 2), and grassroots actors (Track III). Generally, a peace process involves all actors to some degree, although peace negotiations are often exclusive and efforts are needed to include more actors without making the management of the process impossible. Most dialog-oriented measures could also have been listed in the other sections, since such methods can be adapted to various types of conflict.

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351 <http://www.ipcc.ch> (12.1.2008).



Measure 21:  
Mixed teams of environmental experts and mediators

*Description:* Third parties are actors who assist conflict parties in negotiating a peace agreement and transforming the conflict. Generally, more than one third party is involved. The aim is to collaborate rather than to compete in assisting peace processes. By working together, third parties can increase information exchange, leverage, and the pooling of their resources and expertise. One concrete measure that links the fields of 'environment' and 'conflict prevention' is the use of mixed teams consisting of both environment and mediation experts (see measure 5). The role of the environmental experts is to provide neutral scientific data that is relevant in understanding the environmental issues at hand and in developing appropriate mitigation measures. In a heavily political context, this data may be perceived as being more favorable to one party in the conflict or the other, and may be instrumentalized for political gain. The role of mediation experts is different; they focus on procedural issues, structure the process, facilitate communication, or draft solutions based on the common ground that was identified in the negotiation process. If the mediators introduce technical data – even if it is scientifically sound – they may be viewed as being biased, and be prevented from achieving their core task.

*Rationale:* Third-party assistance can support conflict parties in reaching an agreement, for example in the form of mediation (support by an acceptable third party). The probability of an agreement being reached is approximately two to five times larger in mediated conflicts than in those where no mediation takes place.<sup>352</sup>

*Institutionalization and examples:* Generally, experts on specific environmental topics will be brought in to train the negotiating parties rather than being fixed members of the facilitation

team. In the North-South Sudan peace process, for example, the mediators called in technical experts to coach the two parties on the details of oil economics. Once both parties had acquired sufficient information, it was possible to proceed with the negotiation process. It may therefore at times be advisable to remove an issue from the political negotiation process to allow for scientific assessment or to provide technical instruction to the conflicting parties. However, but the issue must subsequently be reintegrated into the political process.

Another example of balancing ecological expertise with mediation skills are UNEP's efforts to provide scientific data and convene technical meetings between nations on shared transboundary environmental issues. Examples are the talks between Afghanistan and Iran on the joint management of the Sistan wetlands, or meetings between the environmental administrations of Iran and Iraq, South and North Sudan, and Israel and the Palestinian Authority.

Third-party coordination – with or without the inclusion of environmental expertise – is also central to the success of a peace process. The 'Groups of friends' organization<sup>353</sup> generally brings together non-aligned third-party states who wish to facilitate and support a peace process.

*Assessment:* In environment-related conflict, both types of experts (environmental experts and mediators) need to know enough about the other field of expertise to communicate and work with each other, and to know when to call in the other expert. It is important, however, that their roles be kept separate. It is therefore generally advisable for one person to stick to one role throughout a process, even if he/she ideally has the skills to do both. The idea of a

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352 Beardsley, K.; Quinn, C.; Biswas, D. M. and Bidisha/Wilkenfeld, J., 2006: *Mediation Style and Crisis Outcomes*, Journal of Conflict Resolution, 50(1): 58-86.

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353 Whitfield, T., A Crowded Field: Groups of Friends, the United Nations and the Resolution of Conflict, Center on International Cooperation (CIC), 2005: <http://www.cic.nyu.edu/internationalsecurity/emsi.html> (12.1.2008).

comprehensive approach to peace processes,<sup>354</sup> including various topics such as environment, economy, culture, politics, security, society, etc., can only be implemented if the various relevant third parties also work together.

*UN involvement:* UNEP's 'Environmental Diplomacy' approach tries to combine the scientific environmental dimension with the political one<sup>355</sup> (see UNEP's ongoing cases in the section on institutionalization above). The UN is often the most legitimate actor for mediation in peace processes, with the most resources and greatest leverage. Yet it has some limitations, e.g., when a country does not want to draw international focus on problems that it considers to be subject to internal affairs. The UN is often also slow in acting and may be hampered by differences amongst its members. Furthermore, there is a danger that it may deal with mediation in peace processes in an overly standardized manner, ignoring context and cultural sensitivities (see the problems with the Darfur peace process in Part 1). For further material on negotiations and the environment, see the following footnote.<sup>356</sup>

## Measure 22: Multiple stakeholder dialog processes

*Description:* Dialog processes between various stakeholders on resource management can help

in linking up governmental decisionmaking processes with the broader society. Such dialog processes can be in part consultative, and in part also provide ideas to be taken up at the governmental level. Generally, participants join in their personal capacities, even if they hold an official position, which enables informal and free dialog. This approach fosters a better understanding of the problems and perspectives at hand. Ideally, a group consists of representatives of stakeholders relevant to the key issue, who go through a process of contact, trust-building, joint analysis, exchange of perceptions, and joint action.

*Rationale:* Environmental concerns often affect diverse stakeholder groups. If policies are not influenced and carried by those affected by them, they are likely to be resisted, ignored, and unsustainable.

*Institutionalization and examples:* Due to their often informal nature, dialog processes are often organized very flexibly and institutionalization is thin. A strong institutional backing and frequent active third-party support may be essential at the beginning. One example of a dialog process on shared water resource management is that of the Eastern Nile Basin: A small group of academics, NGO representatives and government officials from Egypt, Ethiopia, and Sudan met over a period of three years in Switzerland to discuss water-related development issues.<sup>357</sup> Also in the Nile Basin, the Nile 2002 Conferences

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354 Mason, S.; Bleeker, M.; Michael, M. and Siegfried M. (Forthcoming): *Bridging the Mediation Gaps: Towards a Comprehensive Use of Mediation in Peace Processes* see also Mason, S., 2007: *Mediation and Facilitation in Peace Processes*, <http://www.isn.ethz.ch/news/dossier/mediation/editorial/index.cfm> (12.1.2008).

355 [http://www.unep.ch/roe/documents/events/environmental\\_diplomacy\\_course\\_2006.pdf](http://www.unep.ch/roe/documents/events/environmental_diplomacy_course_2006.pdf) (12.1.2008).  
See also: Carroll, J. E., 1990: *International environmental diplomacy: the management and resolution of transfrontier environmental problems*, Cambridge: Cambridge University Press.

356 UNEP, *Additional Materials on Negotiation*, <http://www.unep.org/dec/onlinemanual/Compliance/NegotiatingMEAs/AdditionalResource/tabid/596/Default.aspx> (12.1.2008).

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357 Mason, S., 2005: *Are we Scorpions? The Role of Upstream-Downstream Dialogue in Fostering Cooperation in the Nile Basin*, International Mountain Society (IMS) and United Nations University (UNU), <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=14876> (12.1.2008).

Mason, S., 2004: *From Conflict to Cooperation in the Nile Basin*, Ph.D. dissertation, ETH Zurich, Center for Security Studies, <http://www.isn.ethz.ch/pubs/ph/details.cfm?id=7387> (12.1.2008).

Arsano, Y., 2007: *Ethiopia and the Nile Dilemmas of National and Regional Hydropolitics*, ETH Zurich, Center for Security Studies, <http://www.isn.ethz.ch/pubs/ph/details.cfm?lng=en&id=31559> (12.1.2008).

supported by the Canadian International Development Agency facilitated meetings between numerous actors in the countries of the Nile Basin. The closest institutionalization of such activities is now the Nile Discourse.<sup>358</sup>

*Assessment:* Multiple stakeholder dialog processes do not replace governmental decisionmaking processes, but rather seek to complement them. They can be viewed as being successful if they: 1) increase their circle of participation over time, 2) aim at joint concrete actions between members of the group, 3) ownership of the process is increasingly taken by the participants, and 4) the government is informed and linked to the process. The weakness of such processes is that they can do little to return a frozen situation to the official track, and ideas generated by them may be shot down if the government is not carefully linked to the process. This measure could have been included in the other sections as well, as the method can be used for various types of conflicts.

*UN involvement:* See examples from Measure 17 (activities of UNDP/TRIB, GEF, UNESCO, UNESCWA), as well as the FAO approach to conflict management related to natural resource use.<sup>359</sup>

## Economic-political approaches

The economic-political approaches summed up here offer a cursory idea of how economic factors related to the environment can be used in conflict prevention. For further approaches, see the following footnote.<sup>360</sup>

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358 <http://www.nilebasindiscourse.net> (12.1.2008).

359 <http://www.fao.org/forestry/site/conflict/en/> (12.1.2008).

360 Suhrke, A.; Wimpelmann, T. and Dawes M., 2007: *Peace Processes and Statebuilding: Economic and Institutional Provisions of Peace Agreements*, CMI publication, <http://www.cmi.no/publications/publication/?2689=peace-processes-and-statebuilding> (12.1.2008).

Wennmann, A., 2007: *Money Matters: Economic Dimensions of Peace Mediation*,

## Measure 23: Wealth-sharing in peace agreements

*Description:* Measures to share wealth are often pivotal in peace agreements, since in many cases, resources are key sources of conflict and war. Wealth-sharing clauses in peace agreements specify how the wealth, natural resources, tax income, etc., are distributed between the former belligerents and/or regions of a country. A key principle is to carefully assess the links between political power-sharing, wealth-sharing, and military control, as wealth without political power is as useless as political power without wealth. Another key principle is that it is generally easier to share the revenues from the resource and allocate these between the parties, rather than sharing the resource per se.

*Rationale:* By de-linking territory (e.g., where the oil is located) from the actual resource, wealth sharing clauses can help to end secessionist wars. They also provide important resources for post-peace agreement reconstruction efforts. Thus, a resource like oil can be a major cause of a war, but also a motivation to end the war.

*Institutionalization and examples:* In the Sudan North South 'Comprehensive Peace Agreement',<sup>361</sup> the net oil revenues were shared in equal parts between the North and the South, after subtracting two percent for the states/region of production. The idea was not only to share political power between the North and South in an asymmetric federal system, but to also give the South the wealth needed to exert this political power. In the Aceh 2005 Memorandum of Understanding<sup>362</sup> between the government of Indonesia and the GAM (Free Aceh Movement), Aceh was entitled to retain 70 percent of the revenues from current and future hydrocarbon deposits and other natural resources on the territory of Aceh. The Mediation Support Unit of the Department of

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[http://www.psis.org/pdf/PSIS\\_OP-4\\_Wennmann.pdf](http://www.psis.org/pdf/PSIS_OP-4_Wennmann.pdf) (12.1.2008).

361 <http://www.unmis.org/English/cpa.htm> (12.1.2008).

362 [http://www.cmi.fi/?content=aceh\\_project](http://www.cmi.fi/?content=aceh_project) (12.1.2008).

Political Affairs (DPA) was able to compare how 'wealth-sharing' clauses were negotiated in various peace negotiations, so as to generate lessons for the future.

*Assessment:* As a strength, wealth-sharing in peace agreements is perhaps the most direct manifestation of how economic and environmental issues are taken into consideration in a peace agreement, which is central to ending the conflict. The key weakness of wealth-sharing clauses (as well as of other clauses in a peace agreement), however, is not the nature of the clauses per se, but their implementation. In the case of Sudan, for example, Khartoum controls the release of information about the oil extraction, making it difficult to assess how far it is meeting the wealth-sharing provisions.<sup>363</sup>

*UN involvement:* In this context, the UN Department of Political Affairs is the key actor, with the Mediation Support Unit (MSU)<sup>364</sup> acting as a hub of lessons-learned on this topic – although there are no “guidance notes” on this issue so far. The UN Mission to Sudan (UNMIS)<sup>365</sup> is supporting the implementation of the Sudan North-South Peace Agreement, thus also dealing with the wealth-sharing components of the agreement.

#### Measure 24: Peace parks

*Description:* Peace parks<sup>366</sup> are transfrontier conservation areas. The aim is to help develop

human resources, support sustainable economic development (e.g., eco-tourism), the conservation of biodiversity, and regional peace and stability. Peace parks support peace between states through natural conservation sites that straddle their borders.

*Rationale:* The joint management of peace parks and natural resources involves collaboration between the involved states, thereby acting as a confidence-building measure. Job opportunities are created, and the free movement of tourists across borders helps stabilize peace between the countries. Peace parks can also change focus from a contested resource view to a collaborative, probably different use (e.g., facilitating the transition from a territorial conflict to the shared management of the same region as an environmental conservation area).

*Institutionalization and examples:* Peace parks are generally managed by the involved states. The Peace Park Foundation,<sup>367</sup> the World Conservation Union (IUCN),<sup>368</sup> the World Commission on Protected Areas (WCPA), UNEP,<sup>369</sup> the WWF, and other non-governmental bodies may support them in their efforts. In 2001, there were transboundary protected areas in 113 countries. Examples are the Great Limpopo between Mozambique and South Africa, or the Pha Taem Protected Forest Complex between Thailand, Cambodia, and Laos. A peace park has also been proposed for the Demilitarized Zone between North and South Korea as a confidence-building measure once a peace agreement has been reached.<sup>370</sup>

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363 [http://www.ecosonline.org/back/pdf\\_reports/2007/Oil/SIB%20Small%20Arms%20Survey.pdf](http://www.ecosonline.org/back/pdf_reports/2007/Oil/SIB%20Small%20Arms%20Survey.pdf) (12.1.2008).

364 <http://www.unpeacemaker.org> (requires free registration) (12.1.2008).

365 <http://www.unmis.org/english/en-main.htm> (12.1.2008).

366 For a comprehensive overview, see: Saleem, H. A. (ed.), 2007: *Peace Parks, Conservation and Conflict Resolution*, MIT Press, <http://mitpress.mit.edu/catalog/item/default.asp?tttype=2&tid=11250> (12.1.2008), or also [http://www.unep-wcmc.org/protected\\_areas/transboundary/adjoining.pdf](http://www.unep-wcmc.org/protected_areas/transboundary/adjoining.pdf) (12.1.2008).

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367 Founded by Nelson Mandela, Prince Bernhard of the Netherlands, and Anton Rupert, <http://www.peaceparks.org/> (12.1.2008).

368 <http://www.tbpa.net/index.html> (12.1.2008); <http://www.iucn.org/themes/wcpa/theme/parks/parks.html> (12.1.2008).

369 [http://www.unep-wcmc.org/protected\\_areas/transboundary/index.html](http://www.unep-wcmc.org/protected_areas/transboundary/index.html) (12.1.2008), and Budowski: *Peace through parks* <http://www.unep.org/OurPlanet/imgversn/144/budowski.html> (12.1.2008).

370 Lachowski, Z.; Sjörgen M.; Bailes, A. J. K.; Hart, J.; Kile S.; Mason S.; and Mauer, V., 2007: *Tools for building confidence on the Korean peninsula: a report*

*Assessment:* As Nelson Mandela has pointed out, the strength lies in the fact that there is no ideology, philosophy, or political movement that does not agree with the concept of peace parks, thereby making it an ideal confidence-building measure that serves to bridge tensions between states as well as help natural conservation and local development (e.g., through eco-tourism). They may also serve as a solution to contested border areas, de-linking territory from its use and management. Their weakness is that, in and by themselves, peace parks cannot (but also are not intended to) deal with all key conflict issues. Therefore, one should refrain from linking overly ambitious aims to this measure.

*UN involvement:* As mentioned above, UNEP plays a key role in these efforts.

#### Measure 25: Smart sanctions

*Description:* One of the tools that the Security Council can employ to maintain peace is the use of economic and/or other sanctions that do not involve the use of armed force (under Chapter VI of the Charter).<sup>371</sup> Sanctions may include comprehensive economic, trade, or targeted ‘smart’ sanctions (e.g., arms embargos, natural resources, travel bans, and financial or diplomatic restrictions).

*Rationale:* When diplomatic initiatives have failed, sanctions can be one way of increasing pressure on a conflict party before actually using military force.

*Institutionalization and examples:* The UN Security Council has imposed embargos related to natural resources in Angola and Sierra Leone, diamonds and timber in Liberia, and diamonds in Côte d’Ivoire; currently, only the embargo against Côte d’Ivoire remains active.<sup>372</sup>

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by SIPRI and CSS, <http://www.korea-cbms.ethz.ch> (12.1.2008).

371 <http://www.un.org/sc/committees/> (12.1.2008).

372 UN Security Council, 2007: *Natural Resources and Conflict*, Update Report No. 2, 20 June 2007 [http://www.securitycouncilreport.org/site/c.gIKWLeMTIsG/b.2822787/k.CEE6/Update\\_Report\\_No\\_2B](http://www.securitycouncilreport.org/site/c.gIKWLeMTIsG/b.2822787/k.CEE6/Update_Report_No_2B)

*Assessment:* As a strong point, sanctions can be an effective way of increasing pressure without having to use military force. The advantage of smart sanctions is to minimize the impact of sanctions on the most vulnerable members of the population by targeting specific actors, specific resources (diamonds), or allowing for humanitarian exceptions (Oil-For-Food program for Iraq, 1995–2003). As a weakness, there still remains the danger of targeting the wrong actors (i.e., the wider population), and it is often difficult to win the necessary support of the international community for a resolution, while the implementation may also be very difficult (e.g., corruption in the Iraq Oil-For-Food program).

*UN involvement:* The Security Council, the DPA, the DPKO, and the UN Sanctions Committee<sup>373</sup> are key actors in this context.

#### Measure 26: Environment and natural resources management unit

*Description:* The aim of an ‘Environment and natural resources management unit’ of a UN Mission is to support the transitional government after the signing of a peace agreement in restoring correct administration of natural resources. The unit can also assist the UN, the government, donors and NGO partners on environmental policies and strategies to comply with any sanctions imposed by the Sanctions Committee of the UN Security Council.

*Rationale:* In the transitional period, the institutional capacity of a government is often very weak. Outside assistance may be needed to manage environmental or natural resources in a manner that supports peace and development, and to avoid a return to violent conflicts, especially in cases where the environment and its resources were key factors in the conflict.

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[RNatural Resources and ConflictBR20 June 2007.htm](#) (12.1.2008).

373 <http://www.un.org/sc/committees/index.shtml> (12.1.2008).

*Institutionalization and examples:* The environment and natural resources unit of the UN Mission in Liberia<sup>374</sup> demonstrates the possible activities of such a unit: environmental site assessment, awareness-raising activities, assisting the government in environmental management and policymaking, assistance to the Panel of Experts on Sanctions, and assistance to the Department of Peacekeeping Operations (DPKO) on developing and implementing environmental guidelines for peacekeeping operations.

*Assessment:* As a strength, such a unit can combine environmental expertise focused on a specific case; this bears great potential for covering many of the points argued for in this report by dealing with environmental factors transversally in conflict prevention, but to do this in a very concrete manner. On the weak side, there may be a danger that existing expertise in or on the country is ignored; it would therefore be essential to work closely with such expertise in a culturally sensitive manner.

*UN involvement:* UNEP's Post-Conflict and Disaster Branch has provided such assistance to emerging states in some of the post-conflict cases they are involved in, e.g., in Afghanistan.<sup>375</sup>

### Conclusions of Part 3

The above mentioned measures visualize how the environment can be linked to conflict prevention through practical approaches. The measures also illustrate in a concrete manner the five key recommendations of this study – listed in the Executive Summary. Further in-depth analysis of groups of measures, clustered according to the three conflict types of this report, could be beneficial in putting forth useful reform suggestions. Such an analysis may also help to make better use of synergies between existing programmes, institutions and bodies dealing with this important subject.

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374 <http://unmil.org/content.asp?ccat=environmental> (12.1.2008).

375 <http://postconflict.unep.ch/index.php?prog=afghanistan> (12.1.2008).

## Annex A<sup>376</sup>:

### UN Reports, Declarations and Resolutions that have Focused on the Environment and Conflict Prevention<sup>377</sup>:

Title of UN document	UN doc. Symbol	Date	Description	Conflict Prevention <sup>378</sup>	Types of Conflict <sup>379</sup>	Priority Area
Convention on the Prohibition of Military or any other hostile use of environmental modification techniques (ENMOD Treaty)	A/RES/31/72	10 Dec. 1976	Signed in response to the controversial use of defoliants in Southeast Asia in the 1970s.	Structural	Direct use	Environment
Report of the United Nations Water Conference, Mar del Plata, Argentina	E/RES/21/21(LXIII)	March 1977	Cooperation as key to managing and developing water resource assessments, health and pollution control, water legislation etc.	Structural	Direct use	Environment
UN Conference on Desertification (UNCOD)	UNEP/GC/DEC/5/95	24 May 1977	The Conference drew on four reviews: the relationship of desertification to climate, ecological change, technology and society. <sup>380</sup>	Structural	Direct use	Environment
Permanent sovereignty over natural resources	E/RES/21/20(LXIII)	4 Aug. 1977	Those subject to foreign domination, colonial administration, alien occupation, apartheid or racial discrimination have right to permanent sovereignty over natural resources.	Structural	Escalated conflict	Environment
Report of the World Commission on Environment and Development Resolution	A/RES/42/187	29 Feb. 1988	Concerned with the resulting consequences of accelerating deterioration of the human environment and natural resources.	Structural	Indirect, Direct & Escalated	Environment and Conflict

376 For a more comprehensive list of treaties, conventions and protocols related to environmental security, see Figure 4 in Sills, J.B. et al., 'Environmental Security: UN Doctrine for Managing Environmental Issues in Military Action', Executive Summary, AC/UNU Millennium Project. Available: <http://www.acunu.org/millennium/es-un-chapt2.html>

377 All UN documents available at: <http://www.un.org/documents/>. For a list of international environmental treaties and conventions, see: <http://www.ECOLAX.org/index.htm>

378 Operational conflict prevention activities and initiatives include short term measures, usually implemented in emergency situations – and structural conflict prevention focuses on addressing the root causes of conflict through long-term prevention. Annan, K, 'Prevention of armed conflict: Report of the Secretary-General', A/55/985 S/2001/574, United Nations, 7 June 2001. <http://daccessdds.un.org/doc/UNDOC/GEN/N01/404/64/PDF/N0140464.pdf>

379 This column looks at what types of conflict are being addressed in the mentioned documents and conferences. They are classified as: Indirect use of natural resources through commercialization; Direct use of natural resources such as large development projects etc; and Escalated conflicts or conflict 'hot spots' which include environmental factors, where UN intervention is usually likely.

380 See: <http://www.ciesin.columbia.edu/docs/002-478/002-478.html>

The Dublin Statement on Water and Sustainable Development, International Conference on Water and the Environment (ICWE), Dublin, Ireland	n/a	31 Jan. 1992	Principles: fresh water is a finite and vulnerable resource; participatory approach to water development and management; women's integral role; water as an economic good.	Structural	Direct use	Environment
The Rio Declaration on Environment and Development, adopted at United Nations Conference on Environment and Development (UNCED)	A/CONF. 151/RES/1	14 June 1992	Established 27 Principles to achieve sustainable development through cooperation. <sup>381</sup>	Structural	Direct use	Environment and Conflict
Agenda 21, adopted at United Nations Conference on Environment and Development	n/a	14 June 1992	Outlined goals and potential programs necessary to implement sustainable development.	Structural	Direct use	Environment and Conflict
The UN Convention on Biological Diversity (CBD), adopted at United Nations Conference on Environment and Development	n/a	14 June 1992	Adopted to encourage biological diversity conservation through sustainable, fair and equitable distribution of the benefits. <sup>382</sup>	Structural	Direct use	Environment and Conflict
The United Nations Framework Convention on Climate Change (UNFCCC), adopted at United Nations Conference on Environment and Development	n/a	14 June 1992	Emphasizes need to stabilize atmospheric concentrations of greenhouse gases and prevent 'dangerous interference' in climate.	Structural	Direct use	Environment
The Statement of Forest Principles), adopted at United Nations Conference on Environment and Development	n/a	14 June 1992	A non-binding agreement on development, preservation and the protection of the Earth's remaining forests.	Structural	Indirect & Direct use	Environment
An Agenda for Peace <sup>383</sup>	A/47/277	17 June 1992	Strengthen UN Secretary General summarized Charter's capacity to address preventive diplomacy, peacemaking and peacekeeping.	Structural	Escalated conflict	Conflict
United Nations Convention to Combat Desertification (UNCCD) <sup>384</sup>	A/RES/47/188	Dec. 1992	Established Committee to work on combating desertification in countries experiencing serious drought and/or desertification.	Operational	Direct use	Environment

381 See: <http://www.unclos.com/>

382 Natural Resources Canada, 'Organizations, Agencies and Fora', NRCan's Role Internationally, Natural Resources Canada, Last Updated: 28 March 2003, [http://www.nrcan-rncan.gc.ca/sd-dd/internat/linkorgs\\_e.html](http://www.nrcan-rncan.gc.ca/sd-dd/internat/linkorgs_e.html)

383 Boutros-Ghali, B, 'An Agenda for Peace: Preventive diplomacy, peacemaking and peace-keeping', Report of the Secretary-General pursuant to the statement adopted by the Summit Meeting of the Security Council on 31 January 1992, A/47/277, United Nations, 17 June 1992. <http://www.un.org/Docs/SG/agpeace.html>



Report of the UN International Conference on Population and Development (ICPD), Cairo, Egypt, 5-13 Sept. 1994	A/CONF.171/13	18 Oct. 1994	4 goals led to UN Population Fund: universal education; reduction of infant and child mortality; reduction of maternal mortality; access to reproductive/sexual health services.	Structural	Direct use	Environment
United Nations Convention on Law of the Sea (UNCLOS)	n/a	16 Nov. 1994	Defines rights/responsibilities of countries in: sea usage, business regulations, environmental protection and marine resource management. <sup>385</sup>	Structural	Indirect & Direct use	Environment
Resolution on the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks	A/RES/49/121	10 Jan. 1995	Promoted sustainable use and development of the marine living resources of seas and oceans by promoting harmonization of national legislations to ensure consistent application.	Structural	Indirect & Direct use	Environment
Rome Declaration on World Food Security and World Food Summit Plan of Action : UN Food and Agricultural Organization (FAO) World Food Summit, Rome, Italy	n/a	13-17 Nov. 1996	Food security as priority through: activities related to poverty eradication, a peaceful and stable environment, access to resources, agriculture and sufficient food supplies.	Structural	Direct use	Environment and Conflict
Supplement to an Agenda for Peace	A/RES/51/242	26 Sept. 1997	Outlined the future role of the UN in conflict prevention, peacebuilding and peacekeeping.	Structural/ Operational	Direct & escalated conflict	Conflict
The Aarhus Convention: The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	n/a	25 June 1998	Promotes sustainable development through multi-stakeholder approach in linking environmental and human rights.	Structural	Direct use	Environment and Conflict
Environment and Human Settlements: Report of the Secretary-General	A/53/463	6 Oct. 1998	Made reform recommendations within fields of the environment, habitat and sustainable development.	Structural	Direct use	Environment and Conflict

384 See: <http://www.unccd.int/>

385 The UN Secretary General receives ratification and accession instruments and the UN provides support for the Convention. However, neither have an operational role in the implementation of the Convention. Other organizations such as the Intergovernmental Maritime Organization, the International Whaling Commission, and the International Seabed Authority that was established by the Convention do however play a role. See: <http://www.unclos.com/>

Secretary-General Bulletin: Observance by UN forces of international humanitarian law	ST/SGB/1999/13	6 Aug. 1999	Represents the one formal environmental security guideline in UN doctrine for military action	Operational	Indirect & escalated conflict	Environment and Conflict
Report of the Secretary-General on environment and human settlements	A/RES/53/242	10 Aug. 1999	Reiterated recommendations made by the Secretary-General's Report on Environment and Human Settlements; requests strengthening of UNEP, Nairobi.	Structural	Direct use	Environment and Conflict
Prevention of War and Disaster, a report by the Secretary-General	A/54/1	31 Aug. 1999	Pushed forth more efficient humanitarian response strategies, victim assistance and prevention of war and disasters.	Operational	Escalated conflict	Conflict
We the Peoples': The role of the United Nations in the 21st century, Report of the Secretary-General	DPI/2110	30 Mar. 2000	Listed several organizations working on understanding and analyzing the links between environmental stress and conflicts.	Structural	Indirect, Direct & Escalated	Environment and Conflict
Report on the Panel on UN Peace Operations, 'Brahimi Report' <sup>386</sup>	A/55/305	21 Aug. 2000	Recommended: clearer communication between UN Secretariat and Security Council, effective recruitment and rapid deployment of operations, reorganization of funding, creation of Integrated Mission Task Forces.	Operational	Escalated conflict	Conflict
Security Council Resolution 1325 on Women, Peace and Security	S/RES/1325	31 Oct. 2000	Recognizes need to mainstream women in the prevention and resolution of conflicts and in peace-building, by stressing equal and full participation in promoting peace and security.	Structural	Indirect, Direct & Escalated	Conflict
Prevention of armed conflict: Report of the Secretary-General	A/55/985	7 June 2001	Pushed transformation of UN's conflict policies from reaction to a culture of prevention. Outlined different roles of member states and UN organizations and agencies.	Structural/ Operational	Indirect & escalated conflict	Conflict

386 The Panel on United Nations Peace Operations, 'Report on the Panel on UN Peace Operations, Brahimi Report', A/55/305, United Nations, 21 August 2000, [http://www.un.org/peace/reports/peace\\_operations/](http://www.un.org/peace/reports/peace_operations/)

Security Council Resolution 1366	S/RES/1366	30 Aug. 2001	Reiterated Prevention of Armed Conflict resolution, outlined responsibilities of: Member States, Secretary-General, Security Council, and other UN institutions.	Structural/ Operational	Indirect & escalated conflict	Environment and Conflict
State of the global environment and contribution of the United Nations Environment Programme to efforts to address environmental challenges	UNEP/GC/22/2/Add.7	31 Dec. 2002	Summarizes activities of the United Nations Environment Programme (UNEP) in post-conflict environmental assessments, requested by concerned Governments.	Structural	Escalated conflict	Environment and Conflict
Johannesburg Declaration on Sustainable Development and Plan of Implementation of the World Summit on Sustainable Development	DPI/2305	2003	Placed water, energy, health, agriculture and biodiversity to reiterate UNCED's 1992 goal in linking environment and development.	Structural	Direct use	Environment and conflict
UN Secretary-General Kofi Annan's Action Plan to Prevent Genocide	SG/SM/9197	7 April 2004	Action Plan: prevent armed conflict, protect civilians in armed conflict, end impunity through judicial action, gather information & conduct early warning, conduct swift action.	Operational and Structural	Direct & escalated conflict	Conflict
General Assembly Transmitting Report on Threats, Challenges and Change, "A more secure world: our shared responsibility", Note by the Secretary-General	A/59/565	2 Dec. 2004	Identified poverty, infectious disease, environmental degradation, armed conflict, terrorism, organized crime, and weapons of mass destruction as major threats to security	Structural/ Operational	Direct & escalated conflict	Environment and conflict
In larger freedom: towards development, security and human rights for all: Report of the Secretary-General <sup>387</sup>	A/59/2005	21 Mar. 2005	Recommended UN reform: expand Security Council, limit bureaucracy, strengthen democracy, re-evaluate financial organization, address human rights and amend UN charter.	Structural	Indirect & escalated conflict	Conflict
The Peacebuilding Commission Resolution, adopted by the General Assembly	A/RES/60/180	30 Dec. 2005	Established the Peacebuilding Commission to move from peacekeeping to peacebuilding through an integrated approach.	Structural	Indirect, Direct & Escalated	Conflict

387 See: Annan, K. Available: <http://www.un.org/largerfreedom/contents.htm>

The Geneva Declaration on Armed Violence and Development	A/CONF.192/2006/RC/2	20 June 2006	Promoted sustainable security and a culture of peace by strengthening efforts to reduce armed conflict and promote conflict prevention and humanitarian assistance.	Structural/ Operational	Escalated conflict	Environment and Conflict
Prevention of armed conflict Resolution	A/RES/60/284	15 Sept. 2006.	Continued consideration to the Secretary-General's recommendations and support of his Prevention of Armed Conflict report.	Structural/ Operational	Indirect, Direct & Escalated	Conflict
Secretary-General speech: International Day for Prevention of Environmental Damage during Armed Conflict	SG/SM/10696	25 Oct. 2006	Message presented on 6 Nov., the International Day for Preventing the Exploitation of the Environment in War and Armed Conflict	Structural/ Operational	Direct & escalated conflict	Conflict
Annex to the letter dated 11 January 2007 from the Chargé d'affaires a.i. of the Permanent Mission of Italy to the UN addressed to the Secretary-General	A/61/703	18 Jan. 2007	Summarizes and outlines conclusions from the parliamentary hearing held in Nov. 2006 on the theme "Conflict prevention and peacebuilding: reinforcing the key role of the UN".	Structural/ Operational	Indirect, Direct & Escalated	Conflict
Role of diamonds in fuelling conflict	A/RES/61/28	12 Feb. 2007	Reflects on Kimberley Process and reiterates country membership, responsibilities and importance of Member States' commitments.	Structural/ Operational	Indirect & escalated conflict	Environment and conflict
Environment and security partnerships: Conflicts and the environment	ECE/CEP/AC.11/2007/12	15 May 2007	Stresses need to strengthen existing partnerships such as ENVSEC and the Environment for Europe process to establish new cooperation in environment and security.	Structural	Indirect, Direct & Escalated	Environment and conflict

*«Quite frankly, I found the analysis and presentation to be solid. You've done a superior job of presenting the various conceptual approaches and outlining the comparative advantages (as well as weaknesses) of various UN entities.»*

David Jensen, UNEP

*«The report offers the latest in thinking of the complex linkages between conflicts and environment. A group of eminent scholars have managed to strike a balance between providing the reader with a broad overview – while at the same time offering concrete and tangible options for the UN to act on. As global forecasted changes will affect the environment in many parts of the world, the report challenges the UN to take the lead and prevent and resolve environment-related conflict.»*

Jon Martin Trondalen, Compass

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**swisspeace** is a practice-oriented peace research institute in the area of conflict analysis and peacebuilding. swisspeace researches the causes of wars and violent conflicts, develops tools for early recognition of tensions, and formulates conflict mitigation and peacebuilding strategies. swisspeace contributes to information exchange and networking on current issues of peace and security policy through its analyses and reports as well as meetings and conferences. swisspeace was founded in 1988 as the Swiss Peace Foundation with the goal of promoting independent peace research in Switzerland. Today swisspeace engages about 40 staff members. Its most important clients are the Swiss Federal Department of Foreign Affairs (DFA) and the Swiss National Science Foundation (SNF), as well as national and international organizations and foundations.