ENVSEC Initiative

**Environment and Security:
A Framework for Cooperation in
Europe**

DRAFT BACKGROUND PAPER

DISCLAIMER

This draft text was prepared for the purpose of initiating discussion, by:

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The contents do not necessarily reflect the views of UNEP, UNDP or OSCE.

ABSTRACT

Natural resource management and the security of nations and individuals are linked.

Consensus is emerging that cooperative and effective management of natural resources, and national, regional, and international security, are closely linked. For this reason, UNEP, UNDP and OSCE have initiated a process to better integrate environment into peace building and multilateral action in the regions of South-Eastern Europe and Central Asia. These regions are in the midst of tectonic political and economic shifts, with substantial environmental and social consequences. Managing these transitions peacefully is a goal high on the priorities of decision makers, both in the region and internationally.

At the **World Summit on Sustainable Development**, in September 2002, the world's leaders urged "dialogue and cooperation among…civilizations and peoples" [para. 17] "to save our planet, promote human development and achieve universal prosperity and peace" [para. 38]. In their Plan of Implementation, they affirmed that "peace, security, stability and respect for human rights and fundamental freedoms…are essential for achieving sustainable development" [para. 5][1]. This project seeks to further the implementation of this fundamental principle, by catalyzing action around the priority links between environment and security.

More sustainable and equitable management of the environment can be a cost-effective means for building social cohesion, reinforcing mechanisms for collaboration across social and political boundaries, and reducing vulnerability to crises. The plunder of natural resources, the degradation of critical natural systems and the emergence of related public health threats can increase insecurity – through inter-state or inter-community tensions - and in some cases trigger violence. Efforts to reduce these risk factors will therefore have benefits both for the environment and for national security.

Which of these links are most relevant at the regional level, and how can these be represented in maps ?

But which of the links between environment and security are most relevant and urgent in these regions ? To what extent are these links being addressed ? If indeed 'a picture is worth a thousand words', can maps be used to clarify, in a highly-condensed yet visually compelling manner, the environment and security priorities in these regions ? And can these maps help policymakers take action on these links?

This initiative aims to facilitate a process to integrate the links between natural resources and social stability into foreign and development policy. Seeking a non-partisan perspective, it brings together key public officials, researchers and representatives of civil society in South Eastern Europe (SEE) and Central Asia (CA), and their development partners, in an effort to answer the questions listed above.

Through a multi-track consultative process, this effort will seek to define, map out and report on the environmental risks and opportunities with the greatest relevance to security in these regions, and elicit suggested priorities for action. The products of this effort – compelling cartographic representations of the links between environment and security in these regions, with supporting text, and the network and shared vocabulary of its participants – are intended to provide a foundation in these regions for further cooperative action and empowerment around environmental concerns. In short, they will

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[1] Johannesburg Declaration on Sustainable Development , Johannesburg, South Africa, 26 August- 4 September 2002. UN Document A/CONF.199/20*.
http://www.johannesburgsummit.org/html/documents/summit_docs/131302_wssd_report_reissued.pdf

be designed to illustrate priority concerns and mobilize international and domestic resources for action.

This primary phase of the initiative will conclude by presenting to the Ministerial Conference on 'Environment for Europe' in Kiev and OSCE Economic Forum in Prague, in May 2003, a final report that maps out in graphic form the environmental concerns with likely security implications in the South Eastern European and Central Asian regions, and suggests some strategies for promoting peace in these regions through environmental investment.

In the paper that follows, we will briefly explain the rationale and timeline for this project and its partners, and outline the conceptual frameworks linking environment and security. We will describe some of the environment and security links of particular regional concern, as well as some of the relevant environmental and foreign policy processes underway that seek to address these. We will conclude with some questions for further thought, as a basis of discussion for our consultation meeting.

The aims of the **Regional Consultation** are to:

- Agree upon on the goals of this initiative.

- Arrive at regionally appropriate descriptions (or interpretations) of the links between environment and security, enabling identification of concerns and opportunities for cooperation of greatest relevance.

- Catalog and prioritize these for the purpose of mapping.

- Identify constraints related to data and to political realities, and means for addressing these.

- Explore means to communicate the results amongst civil society groups, government authorities, regional and international institutions, and donor governments.

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INTRODUCTION: ABOUT THIS PROJECT

"Sustainable development is an exceptional opportunity for humankind – economically, to build markets and create jobs; socially, to bring people in from the margins, politically, to reduce tensions over resources, that could lead to violence; and of course, environmentally, to protect the ecosystems and resources on which all life depends – and thereby merits more urgent attention and high-level commitment."

– Kofi Annan, Global Environmental Outlook, UNEP 2002

The tectonic social and economic changes underway in the countries of Central Asia are having severe environmental consequences, with the potential for adverse impacts on regional relations[2]. Yet many of the most pervasive threats in both regions are the result of activities and processes that pre-date this transition. And certain of these activities and processes have continued or even accelerated today, with implications for long-term national security.

In the paper that follows, we will briefly outline the rationale for this effort, and explain the conceptual basis for linking environment and security. We will describe some of the environment and security links of particular regional concern and areas of cooperation of note, as well as some of the relevant environmental and foreign policy processes underway that seek to address these. We will conclude with some questions for further thought, as a basis of discussion for our consultation meeting.

How are environment and security linked ? Consensus is emerging that around the globe, environmental degradation, inequitable access to critical resources upon which people depend in order to meet basic needs, and competition to extract and control valuable commodities, are each important contributors to conflict[3]. These factors can in many instances trigger or fuel violence, and increase vulnerability to natural disasters[4].

Environmental cooperation can also be a powerful tool for preventing conflict, building mutual confidence, and promoting good neighborly relations, patterns of cooperation, and collaboration that can extend to other areas later[5].

The benefits of taking action on the links between environment and security are clear. First, it is a useful analytical approach – allowing identification of those environmental investments with the greatest social 'added value'; and a powerful argument that appropriate attention to environment is often a question of basic security, rather than a luxury. Second, cooperation over shared environmental aims is an aspiration that can bring diverse groups together**.** Questions that cut across national security, foreign policy and management of natural resources might create common ground between governments, ministries and civil society groups.

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[2] Horsman, S. Environmental Security in Central Asia. Royal Institute for International Affairs, January 2001.

[3] For some of the most influential research on these links, see: Homer-Dixon, T. Environment, Scarcity and Violence. Princeton University Press, 1999; Baechler, G. Why Environmental Transformation Causes Violence. Environmental Change and Security Projecy Report 4, Woodrow Wilson Center, 1998; and Berdal, M. and Malone, D. Greed and Grievance: Economic Agendas in Civil War, International Peace Academy, 2000. E. Petzold-Bradley, A. Carius, A. Vincze (eds.), Responding to Environmental Conflicts: Implications for Theory and Practice. Kluwer Academic Publishers 2001

[4] Abramovitz, J. Unnatural Disasters. Worldwatch Institute, 2001.

[5] Wolf, A. The Importance Of Regional Co-Operation On Water Management For Confidence-Building: Lessons Learned. April 2002. http://www.sustainable-peace.org/download/Regional_water_co-operation_and_confidence_building.pdf

Proof of this coalition-building potential is the unique **partnership** established here between leading multilateral agencies for security, environment and development, to promote an integrated approach to these concerns in policy in South Eastern Europe and Central Asia.

Through its inclusive dialogue and field presence, the **Organization for Security and Cooperation in Europe** (OSCE) brings emerging concerns in foreign policy and security onto the political agenda of participating states. The OSCE, through its presence and credibility in South Eastern Europe and Central Asia may facilitate dialogue among and between government officials and civil society groups over shared natural resources, and reinforce transboundary and regional cooperation. The **United Nations Development Program** (UNDP) supports the enhancement of governance in pursuit of sustainable development. Through its extensive network of field offices, it tailors its efforts to specific local, national and regional needs. The **United Nations Environment Program** (UNEP) is the world's authoritative source of knowledge on the current state of, and trends shaping the global environment, exemplified by its Global Environmental Outlook process. UNEP will provide the technical expertise and scientific data necessary for mapping, recording and assessing environmental patterns.

Meeting a diverse range of interests and capacities through a unitary 'global' approach is a tremendous negotiating challenge. Fostering cooperation between competing groups creates additional challenges. Regional environmental initiatives with confidence-building provisions are likely to be better adapted to 'local' realities than global efforts. As a consequence, regional efforts may be more effective at integrating environmental action with peace-building. This initiative takes a **regional approach**, with South Eastern Europe and Central Asia as the focus of its pilot phase, but with the potential for application in other regions in the future.

In spite of the apparently close links between environmental problems and security risks suggested by academics, in political practice the environmental and security policy realms are addressed in isolation from each other. Although empirical studies have proven that ecological degradation can play an important role in the emergence or violent outbreak of conflicts, environmental issues are until now only rarely taken into consideration in foreign and security policy. Consequently, collaboration in this area, above all between the OSCE, the UNECE, UNEP and UNDP, can provide important impulses for intersectoral cooperation in the field of security policy and resource management.

Why seek to map the links between environment and security? Maps are graphic tools for representing data and their spatial relationships, including the physical, climatic, social and economic factors influencing them, as well as changes over time. As such, maps are valuable tools for presenting in compressed form a great deal of information, independent of language. Second, maps are easy to communicate, permitting the results of this process to be widely-disseminated through popular media to non-technical audiences. Maps are limited, however, in that they must be simplified and generalized, leaving out a great deal of information. No map can show everything.

Based on the rationale laid out above, **this project seeks**:

- To **clarify the links** between Environment and Security in each of two key regions.
- To identify those Environment and Security links that are of concern, or which have an untapped value for peacebuilding, and which remain incompletely addressed, **giving**

them their due weight in national and regional development and foreign affairs policy processes.

- To **mobilize international and domestic support** for action on these links, through the mapping and presentation of these concerns and opportunities, and through promoting implementation of suitable existing instruments.
- To foster institutional cooperation at the national and regional level.
- To **establish through regional consultations a network** of individuals with a shared vocabulary that will enable them to collaborate on these links in the future, independent of this project.

Its **outputs** will include:

1. Regionally-appropriate definitions of the environment and security linkages of greatest relevance in both South Eastern Europe and Central Asia, through multistakeholder consultations and dialogue.

2. Thematic maps of significant environment and security linkages in each of the regions, presented in the form of a graphically-rich final report and website. Each map will be accompanied by text indicating the relevance of the theme to security in the region, and with suggestions as to the environmental governance tools that might be implemented to mitigate the risk or harness opportunities for cooperation and mediation/mitigation.

3. Presentation of the report and its conclusions at the Kiev Ministerial Conference 'Environment for Europe' in May 2003, with recommendations for follow-up action.

The ENVSEC project follows a three-tier **process** involving regional consultations, mapping and analysis, and steering committee guidance (See figure 1, below). The project will carry out two consultations in the focus regions, designed to bring together representatives from the foreign and environmental ministries of governments in the region with representatives from civil society with an environmental mandate. The first of these consultations will take place in December 2002 or January 2003, and will seek to specify and prioritize the regional concerns and untapped opportunities for cooperation.

Following this consultation, the mapping team (led by UNEP GRID) will attempt to map out in graphical form the priorities identified in the initial consultations. The second set of regional consultations is intended to take place in late Spring 2003, and will present the results of the mapping exercise to the participants, with the aim of revising and consolidating the resulting messages.

The international steering committee (See Annex I) will meet three to four times during the course of this project:

- at its inception in Fall 2002,
- in February 2003 to review the results of the regional consultations and preliminary mapping efforts
- in late Spring 2003 in advance of the Kiev presentation, to finalize the presentation of the conclusions.

The project will be a success to the extent to which it successfully reflects the predominant environmental concerns and opportunities for cooperation in the region with implications for security, and mobilizes resources to confront them.
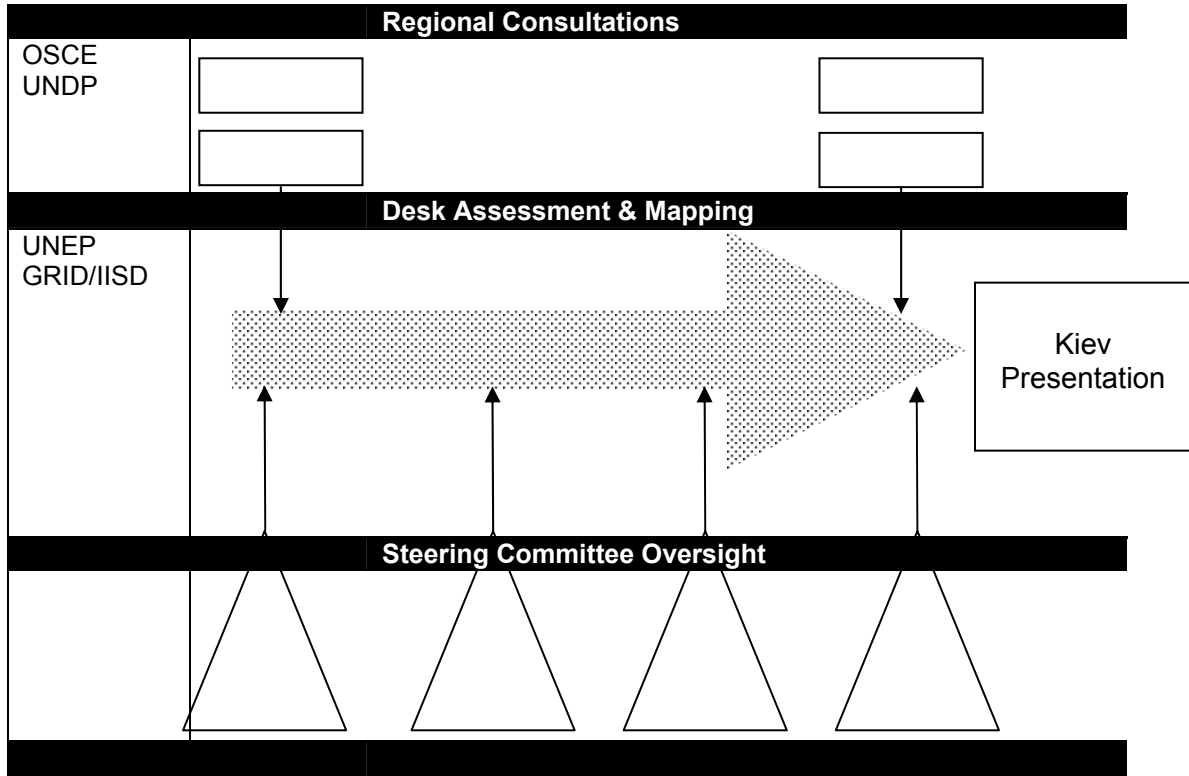
Figure 1.   **ENVSEC Project Outline, showing how three tracks will feed into the final presentation of the results.**

WHY BRING ENVIRONMENT INTO SECURITY POLICY ?

National security has focused traditionally on protecting the territorial integrity and political sovereignty of the state from military aggression from other states. In recent years, there has been increased recognition that security depends on growing array of non-military and non-conventional threats, including terrorism, outbreaks of infectious disease (e.g. HIV/AIDS), economic and resource access shocks, population growth and migration, criminal activity such as trafficking in human beings and the illicit arms trade, and computer viruses.

As a consequence of this change in focus, consensus has emerged that national security can no longer be guaranteed solely by the state or by military force, but depends on levels above (e.g. regional and international) and below (e.g. sub-regions, corporations, civil society and individuals).

In this context, the 1986 nuclear meltdown at Chernobyl and its attendant impacts on neighbouring human and animal populations, and the global recognition of the common threat to humanity posed by the declining ozone layer, together placed public health concerns and international environmental governance gaps squarely in the domain of national security. But international political attention to these links has been emerging for several decades.

The Club of Rome's 1972 "The Limits to Growth" report and the "Global 2000" report (Council on Environmental Quality/Department of State 1981) called attention in urgent terms to the risks associated with natural resource scarcities and continuing deterioration of environmental quality and the connection with an array of socio-economic problems (population growth, urbanization, migration etc.), which, over the long-term, and particularly in developing countries, could lead to security-relevant threats or even to the outbreak of violent conflicts.

In the 1987 Brundtland Report, the World Commission for Environment and Development was the first international institution to explicitly refer to the connection between environmental degradation and conflict. The Commission developed an expanded concept of security:

> The whole notion of security as traditionally understood – in terms of political and military threats to national sovereignty – must be expanded to include the growing impacts of environmental stress – locally, nationally, regionally, and globally. (WCED 1987: 19)

> Environmental stress is seldom the only cause of major conflicts within or among nations. [...] Environmental stress can thus be an important part of the web of causality associated with any conflict and can in some cases be catalytic. (WCED 1987: 291)

Since the mid-1990s the debate on environment and security has broadened by exploring the "human security" dimension of environmental change. This integrative and interdisciplinary concept, developed in the United Nations Development Programme's Human Development Report (1994) is understood to include economic, health, and environmental concerns (Spector/Wolf 2000; Evans et al. 2000).

Human security is achieved "when and where individuals and communities have options necessary to end, mitigate or adapt to threats to their human, environmental and social rights" (Lonergan 1999). The basis for human security is the assurance of fundamental needs such as food, health, basic income, a healthy physical environment and a personal feeling of safety (Spector/Wolf 2000: 415).

Numerous international organizations and national governments have addressed environment and security linkages, with a diverse array of approaches. A Pilot Study by NATO's Committee on the Challenges of Modern Society (CCMS) concluded in March 1999. In its final report, policy makers within the CCMS reflected for the first time on the political impacts of the environment and security nexus on their policy areas.

In the OECD context, two bodies, the Environmental Policy Committee and the Development Assistance Committee, discussed relevant studies in 1997, each body from a different perspective. As early as 1988, the United Nations Environment Programme (UNEP) initiated a study on environmental degradation and conflict together with the International Peace Research Institute, Oslo (PRIO), Norway.

Particularly in the USA, the discourse on environment and security has evolved under the heading of "environmental security" to become almost a branch of research in its own right (ECSP Report 1995, 1996, 1997; for a number of the 'classics' see Brown 1977; Ullman 1983; Mathews 1989; Myers 1989, Kaplan 1994). This theme met with considerable interest in US government circles. The debate centers there on threats to *national* security resulting from environmental stress and resource problems, as expressed since the 1980s in numerous political statements and programs.

The strategic interest of the US administration is exemplified by the 1990 initiative of the then Senator Al Gore, which based itself on "national security" interests to underscore the urgent need for the US government to join in multilateral action on global warming (Gore 1990, 1993).
In April 1997, the Department of State presented a first, now annual report on "Environmental Diplomacy" (Department of State 1997), which elevates environmental policy to one of the prime concerns of US foreign policy.

In 1989, the then Soviet Foreign Minister Eduard Shevardnadze called at the 46th General Assembly of the United Nations for the establishment of an Environmental Security Council entrusted with issues of ecological security (Shevardnadze 1990).

In Western Europe, too, framing environmental issues in terms of security policy would appear to be gaining currency. Thus in 1989, the then Norwegian Defense Minister Johan Jørgen Holst (1989) already pointed out that environmental problems can become an important factor in the development of violent conflicts. British Foreign Minister Malcolm Rifkind (1997) has also stated that maintaining peace must proceed on the basis of equitable resource use and sustainable development. In June 1997, French President Chirac stressed at the Special Session of the UN General Assembly the threat of war can be sparked by water resource conflicts.

In 1998, the debate on cooperative approaches to resolving transboundary water conflicts formed the focal issue of the international dialogue forum "Global Water Politics – Cooperation for Transboundary Water Management" sponsored jointly by the German Federal Ministry for Economic Cooperation and Development (BMZ), the Federal Environment Ministry (BMU), the German Foreign Office, the World Bank and the German Foundation for International Development (DSE). The event, convened in March 1998 in Bonn, culminated in the adoption of the Petersberg Declaration, which sets out principles for cooperative international water politics.

More recently, the June 2002 G-8 Summit meeting of the heads of state of the world's leading economies, concluded that "Global Climate Change is a pressing issues that requires a global solution". During an address at the World Summit on Sustainable Development in September 2002, US Secretary of State and former military commander Colin Powell stressed that "disregard

for the environment threatens the world's natural resources and all who depend on them for food, shelter and livelihood."

In the World Summit on Sustainable Development's final declaration, the world's leaders urged "dialogue and cooperation among…civilizations and peoples" [para. 17] "to save our planet, promote human development and achieve universal prosperity and peace" [para. 38]. In their Plan of Implementation, they affirmed that "peace, security, stability and respect for human rights and fundamental freedoms…are essential for achieving sustainable development" [para. 5][6].

In short, there is an emerging political consensus that environment and security are linked and merit attention, both for the preservation of national security and the protection of human security, and that international cooperation is essential if we are to achieve these ends.

WHAT ENVIRONMENT AND SECURITY LINKS?

The scientific debate on environment and security initially concentrated mainly upon the concept of "security" and its political implications. In this debate, authors aimed at "redefining" the concept of security so as to include social, economic and ecological factors (see e.g. Mathews 1989, Myers 1989, Ullmann 1983). In contrast to the narrower concept of security (protection of national sovereignty and territorial integrity against external and in particular military threats), the extended concept proceeds from a differentiation of security objects (individual, national, regional and international security) and a differentiation of the factors impacting on security (poverty, environmental degradation, illegal arms trade, international drug trafficking etc.).

In mapping the links between environment and security, authors have typically described issues falling into the categories below[7]:

> (1) Control of natural resources as the objective of conflict, or the means for financing it (e.g. conflict over control of minerals or oil fields);
> (2) Environment used as an instrument of war (e.g. poisoning of water supplies);
> (3) Environmental degradation resulting from military action;
> (4) Environmental degradation as a source of human insecurity (e.g. soil degradation, toxic waste or water pollution reducing well-being or creating health risks);
> (5) Securing the Environment from people (e.g. reducing the threat of nuclear war); and
> (6) Environment as a threat to people and nations (e.g. natural disasters, disease epidemics)

In the context of this project, "conflict" can be understood as a continuum ranging from mere differences in the positions of actors, over sporadic use of violence, through to armed conflict.
It would be too narrow to examine only violent conflicts, since we are concerned as well with conflicts below the threshold of violent, armed struggles. Furthermore, conflicts below the violence threshold offer a forum for cooperation and confidence-building. We suggest applying the term "conflict" to describe a situation in which severe social tensions and political disruption may occur and could result in the use of violence.

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[6] Johannesburg Declaration on Sustainable Development , Johannesburg, South Africa, 26 August- 4 September 2002. UN Document A/CONF.199/20*.
http://www.johannesburgsummit.org/html/documents/summit_docs/131302_wssd_report_reissued.pdf
[7] adapted from Horsman, Stuart (2001), Environmental Security in Central Asia, Briefing Paper, New Series no. 17, Royal Institute of International Affairs.

Environmental factors are by no means always a direct cause of such conflicts. They are part of a complex web in which are intertwined socio-economic problems such as overpopulation, poverty, forced mass migration, refugee movements, hunger and starvation, political instability and ethno-political tensions. Environmental degradation and natural resource scarcity are both causes and outcomes of these socio-economic problems or are intensified by these.

"Environmentally-induced conflict" refers therefore to those conflicts which are not due solely to environmental factors, but are a consequence of the inter-relationships between the natural resource base and consumption patterns, and cultural circumstances and traditions, ethno-political factors, political system stability, institutional, economic and technological capabilities, and mechanisms for peaceful conflict resolution (See figure 2). Indeed, shared environmental concerns may play a valuable role in catalyzing cooperation and providing alternative dispute resolution mechanisms.

These relationships and the figure presented below are described more fully in the Annex to this text.
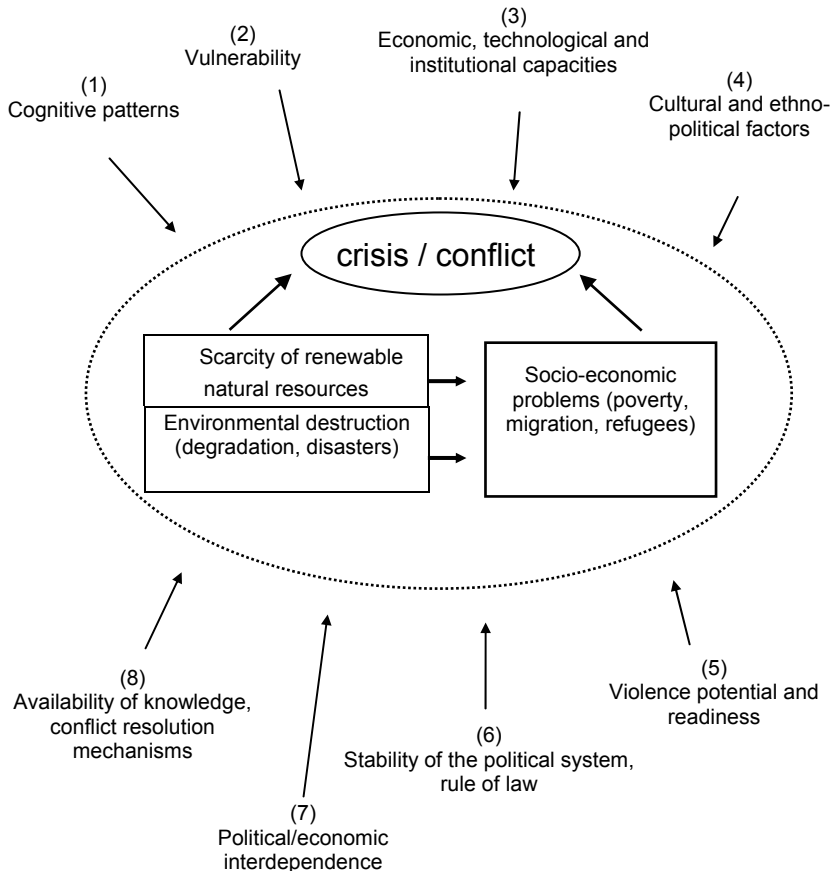

Figure 2.   **Context variables of environmentally-induced conflicts**
                       Source: Carius/Imbusch 1999: 21

In their guidelines on conflict prevention (2001), the OECD member governments recognize that in terms of conflict prevention, "many national conflicts can only be dealt with effectively in their regional contexts, taking account of cross-border influences. Regional co-operation and integration — through economic, environmental and other measures — can contribute to peace building, particularly around scarce common goods such as water."[8]

Avenues for cooperation over environmental ends are diverse, including over air quality, surface and groundwater use, land use, biodiversity conservation and exploitation of shared valuable resource stocks or sites. Levels of cooperation can be framed in terms of the depth of commitment required from the parties to the initiative, from sharing of technical data to joint research, and from collaborative monitoring and non-binding 'joint policy declarations', to regulatory harmonization and implementation of international dispute resolution mechanisms. In a post-conflict setting, collaborative efforts to restore natural spaces, clean up contaminated sites and 'swap' technical personnel can revitalize the environment and replenish trust.

Cooperative initiatives to address environment and security concerns:

- Commission on Environmental Cooperation between US, Canada and Mexico (NAFTA);
- European Union's Global Monitoring for Environment and Security initiative;
- NATO Committee on the Challenges of Modern Society Pilot Study on Environment & Security in an International Context (1999);
- Nile Basin Initiative between Egypt, Ethiopia, Kenya, Sudan and others (1999);
- Mekong River Commission with members Cambodia, Thailand, Laos, Vietnam, Myanmar and "regular dialogue" with China and Myanmar (1995)
- Joint UNECE/UNESCAP SPECA project on Water and Energy (Central Asia)
- Kimberley Process on 'Conflict Diamonds' aimed at controlling illicit commodity trade that contributes to conflict (2001)
- International Protected Areas (Peace Parks) e.g. between Namibia and South Africa, between Costa Rica and Panama, and between Austria and the Czech Republic

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WHAT POLICY MEASURES ARE NEEDED?

The complexity of linkages between resources and conflict calls for integrated and diverse approaches to peace-building, making environmental, development, foreign and security policy approaches all part of the puzzle in achieving security.

Foreign and security policy actors have far-greater resources to prevent environmentally-induced conflicts than environmental policy actors alone. Moreover, environmental stress is not so much a direct cause of conflict but rather a catalyst or trigger that leads to conflicts or violent disputes through the agency of negative consequential socio-economic and political effects. The development of options for action thus also needs to include these socio-economic and political influencing factors.

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[8] OECD DAC. Helping Prevent Violent Conflict - Supplement to the DAC Guidelines on Conflict, Peace and Development Co-operation on the Threshold of the 21st Century. Paris: OECD, 2001:8. http://www1.oecd.org/dac/pdf/G-con-e.pdf

An integrated consideration of environmentally-induced conflicts and, above all, a practical integration of the capacities for action of the actors in the various policy arenas is therefore the most important guiding principle for action in comprehensive conflict and crisis prevention.

Approaches for action need to take into consideration the various levels at which environmentally-induced conflicts arise (local, regional, national, international). Regional conflicts, for instance over the use of increasingly scarce cropland, require other approaches (e.g. regionally and locally developed and applied dispute settlement mechanisms, see Baechler 1998) than the mitigation of the negative and conflict-laden consequences of global climate change (here strategies must address the level of global environmental policy).

Interventions must make use of the specific potentials of the various actors. Local or regional conflicts call for the involvement of local and regional governmental organizations and NGOs which are in a position to develop specific problem resolution strategies adapted to the local or regional conditions, and command over more information on the causes of conflicts than central state and international actors.

From the environmental policy perspective, it is essential to intensify international cooperation on environmental concerns within the context of international environmental regimes, particularly in pursuit of solving global environmental problems with local and regional impacts. Intensified international cooperation should also be used as a long-term strategy to solve or prevent the environmental problems that underlie environmentally-induced conflicts. In environmentally-induced conflicts that have not yet escalated into violence, the relevant institutions of intergovernmental cooperation can serve as conflict resolution arenas.

Well-established environmental institutions can facilitate communication among the conflicting parties and provide scientific advisory support in the conflict resolution process. As already outlined above, it is the availability of a broad array of institutional structures geared to regulating and solving international environmental problems that makes the environmental component of environmentally-induced conflicts such a valuable point of departure for long-term solutions.

A further contribution towards preventing conflict is to more consistently integrate environmental concerns in other relevant policy sectors, in particular in development, foreign and security policy, but also in agricultural, energy and social policy. This requires the systematic review of the realization of these concerns in other policy spheres, e.g. in the context of comprehensive (strategic) environmental impact assessments for political programs and projects. Such assessments need to be implemented at the international and national levels equally. Policy at the international and national level should be oriented towards achieving sustainable development, in order to prevent environmentally-induced conflicts over the long-term.

The prime development policy measures that can be applied to minimize or prevent environmentally-induced conflict include (OECD DAC, 1997):

- Economic cooperation,
- Promotion of participation and democracy,
- Cooperation in population policy matters,
- Support for the establishment of the rule of law and
- Protection of human rights.

Development policy in the context of environment and security should place a focus on stabilizing the socio-economic and political framework conditions in these countries. This includes efforts to promote the involvement of segments of the population in decisions that concern them, and to promote a balanced representation of the various ethnic or cultural groups in decision-making bodies in general.

Many of the environmental problems confronting these societies can only be reversed over very long time scales. Development policy approaches need to focus on supporting the formation of problem-solving or -managing capacities. This includes creating a knowledge of the emergence and prevention of environmental degradation, knowledge of ways to cooperatively utilize increasingly scarce resources and knowledge for utilizing peaceful dispute settlement mechanisms (Baechler 1998).

Foreign and security policy measures by which to address and prevent environmentally-induced conflicts can serve to stabilize the political environment in which local and regional conflicts are situated and which plays a decisive part in determining whether conflicts are resolved cooperatively or violently. Specific foreign policy instruments, such as dispute mediation and the initiation of political dialogs between states bear particular relevance to the channeling of conflicts. Armed forces can be utilized to monitor critical environmental changes and to appraise the risks entailed by environmental problems and their consequential effects.

The supreme principle in preventing and peacefully resolving environmentally-induced conflicts is cooperation: it is essential that environmental, development, foreign and security policy actors work together towards the common aim of peace, and that their specific instruments be integrated in that effort. It is with this aim in view that we turn to the specific situation in the region of Central Asia.

OVERVIEW: 'ENVIRONMENT & SECURITY' IN CENTRAL ASIA

Moving from the theoretical to the practical, we now turn to the links between Environment and Security in the Central Asian region. In the sections that follow, we explore some of the regional environmental issues and policy processes that have been cited as 'security' concerns, whether in raising tensions, threatening public health, creating economic instability, or opening opportunities for international cooperation.

For the purposes of this project, the Central Asian region comprises the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan, and the Republic of Uzbekistan. This represents a total area of about 4 million square kilometres with population of about 60 million people. These countries gained sovereignty and became independent states in 1991 after the dissolution of the USSR.

The landscape of the region comprises the high mountain ridges of the Pamir, Tien Shan and Altai, the deserts and steppes, a few very large rivers - Amu-Darya, Syr-Darya, Irtysh, Ili etc., and several inland lakes, the largest of which are the Caspian and Aral Seas.

The flora and fauna of the region are highly diverse. Stocks of hydrocarbon raw materials (oil, gas) comprise a substantial component of the world balance. The Caspian region [comprised of Azerbaijan, Kazakhstan, Turkmenistan, Iran and Russia] contains 10 billion barrels of proven oil reserves. Proven reserves in the Central Asian states are listed in Figure 3. Turkmenistan, Kazakhstan and Uzbekistan are among the top 20 countries in the world in terms of proven natural gas reserves.

Extensive non-ferrous metal reserves are present as well. The region is also the global leader in the export of grain and cotton. Fossil fuel exploration and production, hydroelectricity, and mining, and metals smelting make up the majority of industrial production in the region.

Figure 3.   Central Asia: Proven Oil and Natural Gas Reserves[9]

Country	Proven Crude Oil Reserves, 1/1/02E (Million Barrels)	Natural Gas Reserves, 1/1/02E (Trillion Cubic Ft)
Kazakhstan	5,417 (10-16,000)	65 (1.5-2.35 TCM)
Kyrgyzstan	40	0.2
Tajikistan	12	0.2
Turkmenistan	546 (1,000+)	101 (2.7-4.4 TCM)
Uzbekistan	594	66.2 (2+ TCM)
Total	6,609	232.6
% of World Total	-	4%

Source: Energy Information Administration, US Department of Energy; European Commission INOGATE (info in parentheses); different figures are available depending on the source

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[9] http://www.eia.doe.gov/emeu/cabs/centasia.html

Figure 4.   Role of Natural Resources in Industrial Production

	Production of Electricity (billion kWh) 1998				
	Total	Hydropower%	Coal%	Natural Gas%	Oil%
Kazakhstan	49.1	12.5	72.0	8.2	7.3
Kyrgyz Republic	11.6	85.6	-	-	-
Tajikistan	14.4	98.1	-	1.9	-
Turkmenistan	9.4	0.1	-	99.9	-
Uzbekistan	45.9	12.5	4.1	71.5	11.9
OECD					

Yet Central Asia has several critical environmental issues - the Aral Sea disaster, Caspian Sea pollution, rising scarcity of freshwater, and desertification, which extend beyond national boundaries and threaten regional security.

Most problems tend to be transboundary in nature, such as air, water and soil pollution and contamination, desertification, biodiversity loss, toxic and radioactive waste disposal. Largely, these are a legacy of Soviet development practices, whereby this region was transformed into a natural resource base to support rapid industrialization and economic growth, to the detriment of the environment.

Some of the most recent attention from the international community has focused on the vast energy resources of the Caspian Sea, as well as on the region's role as a source and transit zone for drug-trafficking and weapons trade between the Middle East, Asia and Europe [including nuclear and biochemical]. Recent civil conflicts in the region have also raised international attention.

There are growing concerns over vulnerability of such infrastructure objects as dams, reservoirs and nuclear plants not only to terrorist activities, but also to simple but dangerous effects of aging. In fact, most of the infrastructure in the region is in great need of refurbishment. There is no coordinated plan yet to address and link these concerns and efforts with environmental action. While there are number of cooperative initiatives in the region aimed at sustainable development and environmental protection, issues of implementation, commitment and monitoring remain largely unaddressed.

Figure 5.   **Central Asia: Environment and Security links** *(sample map)*
                     Source: UNEP GRID

Water Scarcity

One of the most salient transboundary issues remains water scarcity. Water is the most precious resource in Central Asia and its scarcity makes it a constant source of tension both between and within states. The allocation of water among various users and uses has been an issue in Ferghana Valley, which spans parts of Tajikistan, Uzbekistan and Kyrgyzstan and had experienced outbreaks of violence throughout the 1980s and 90s[10]. Population pressures and competition between agricultural and industrial uses contribute to internal tensions in that region (also see Figure 11). The Ferghana Valley Initiative[11] and much attention to this region from the governments and donor community have channeled significant resources to address those issues. One of the downsides has been diversion of funding from other [often poorer] regions of the countries.

Figure 6.   **Water Withdrawals**

Countries	Annual River Flows		Annual Internal Renewable water resources		Annual Withdrawals		Sectoral Withdrawals (%)
	From other countries	To other countries	Total (km)	1998 per capita (m)	BCM	% of total water resources	Agriculture
Kazakhstan	34.2	32	75.42	4484	33.7	30.7	81
Kyrgyzstan	25.9	35.6	46.45	10394	10.1	94.9	94
Tajikistan	50.3	86.9	66.30	11171	11.9	14.9	92
Turkmenistan	70	52.6	1.3	232	23.8	52.3	98
Uzbekistan	34.1		16.34	704	58.1	63.4	94
Source: World Resources Institute (2000)							

Figure 7.   **Groundwater Availability**

	Annual Renewable Groundwater (km3/year)	Amount of Groundwater subject to Abstraction (km3)	Total Actual[12] Renewable Water Resources (km3/year)
Kazakhstan	35.8	6	109.6
Kyrgyz Republic	13.6	3.4	20.5
Tajikistan	6	2.2	15.9
Turkmenistan	3.36	1.2	24.7
Uzbekistan	19.7	7.5	50.4
Source: UN/FAO/Aquastat (1999)			

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[10] In Lubin, Nancy et al (1999). *Calming the Ferghana Valley: Development and dialogue in the heart of Central Asia*: report of the Ferghana Valley Working Group of the Center for Preventive Action. New York: Century Foundation Press. Also see Horsman, Stuart (2001), *Environmental Security in Central Asia*, Briefing Paper, New Series no. 17, Royal Institute of International Affairs.

[11] Eurasia Foundation established this initiative to promote cooperative solutions in the region.

[12] *Total actual renewable water resources* (km^3/year): The sum of internal renewable water resources and incoming flow originating outside the country, taking into consideration the quantity of flows reserved to upstream and downstream countries through formal or informal agreements or treaties. This gives the maximum theoretical amount of water actually available for the country. (FAO/Aquastat: http://www.fao.org/ag/agl/aglw/aquastat/water_res/indexglos.htm)

The Aral Sea catastrophe hardly requires additional explanation. Four-fifths of the water that fed what used to be the world's fourth largest lake had been diverted to support the region's cotton monoculture, predominantly cultivated in Uzbekistan. The result became the Aral desert. The biggest problem at this point is relocation of inhabitants in affected areas, more specifically Karakalpakstan, with a population of roughly 1.5 million, located at the very end of Amu Darya.

The governments of Uzbekistan and Kazakhstan have responded to this challenge mainly by seeking to restore the Sea. One recent effort involved construction of a dam in the Northern part of the Aral, which would increase water level in the north at the expense of the south. This generated tensions between Kazakhstan, the initiator of the project, and its southern neighbor-Uzbekistan. Additional problems include lack of funds for resettlement and compensation for the affected population, in addition to urgent health concerns in the area.

Competition over the flow of the Amu Darya is also likely to be affected by the changes in the regional geopolitical situation. The re-emergence of Afghanistan from isolation in the wake of war creates much incertainty, as 17 percent of the basin lies within this nation, a country that was not actively involved in discussions over distribution of the resource in the past.

Another zone of potential water dispute involves Black Irtysh, tributary of Irtysh-Ob river basin, fifth largest in the world. The dispute had arisen between Kazakhstan and China, when the latter initiated diversion of 5-15 % of Black Irtysh river flow for developments in its Northwestern Xinjiang provinces [formerly Eastern Turkestan populated by ethnic Uighurs, Kazakhs and others], thus further decreasing the river flow to eastern and central Kazakhstan and worsening economic and environmental conditions in those regions [as Black Irtysh is already a heavily polluted river][13]. Protests by NGOs and the public outcry that ensued brought the issue into the spotlight both domestically and internationally[14]. The issue is further complicated by the ethnic tensions between Uighurs and Chinese government in Xinjiang. At the moment, the respective governments concluded an agreement on joint collaborative management of the Irtysh river, which does not specify protective measures or safety principles. Many unresolved questions remain, as no provisions exist about decreasing pollution levels or addressing outstanding environmental impacts, in adherence to transboundary international law practices.

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[13] *Ecostan 7, 2000*

[14] In 2000, there was organized campaigning by more than 20 NGOs to push for more environmental protection on Irtysh (Ecostan 7/2000)

Figure 8.   Water Issues in Central Asia[15]

Drainage Basin	States that share basin	Parties with interests at Stake	Conflicting Interests
Syr Darya	Kyrgyzstan (upstream), Uzbekistan (mid), Tajikistan (mid), Kazakhstan (downstream)	Among Kyrgyzstan, Uzbekistan, and Kazakhstan over water releases from Toktogul reservoir	Energy vs. irrigation
		B/w upstream agricultural users in Ferghana Valley and Golodnaya Steppe and downstream users in Kazakhstan	Quantity and quality of water; agriculture vs. potable water
Amu Darya	Tajikistan (upstream), Uzbekistan (mid), Turkmenistan (downstream), Karakalpakstan in Uzbekistan (down)	B/w Turkmenistan and Uzbekistan in regard to water withdrawals from Kara Kum Canal	Quantity
		Potentially, over water sharing in lower Amu Darya between Uzbekistan and Turkmenistan	Quantity
		B/w upstream users in Tajikistan and users in three downstream states	Quantity and quality; long-term potential conflict energy vs. irrigation
Zarafshon	Tajikistan (upstream), Uzbekistan (downstream)	B/w upstream users in Tajikistan and downstream users in Uzbekistan	Quantity
Source: Weinthal (2002)			

The Caspian Sea presents yet another challenge in terms of regional cooperative solutions. The Caspian is home to proven oil reserves of 18 - 35 billion barrels (equivalent to the North Sea reserves)[16]. Natural gas reserves are believed to on the order of 8-10 Trillion cubic metres, placing it second – a distant second - to the vast gas reserves believed to reside in the Persian Gulf region[17].

The Caspian is also home to 90% of the world's caviar, an export with great international value. The legal caviar exported by Iran alone netted $40 million in 1997[18]. The illegal trade in caviar is estimated on the order of $125 million each year.

The Sea has already been reportedly polluted by industrial waste from Volga, Terek, and Kura rivers. Hydro cascades all along Volga have significantly decreased water flow, thus resulting in large biodiversity losses, including damage to the much-prized sturgeon population. Petroleum

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[15] Based on the Table 5.2 from Weinthal, E. (2002), State Making and Environmental Cooperation, MIT Press, p.120

[16] Only a fraction of technically recoverable reserves of crude oil—the amount of oil that experts are certain of being able to extract without regard to cost - can be viably extracted at current market prices using existing technology. Source: "Petroleum," Encarta Online Encyclopedia. Microsoft Corporation, 2001. http://encarta.msn.com

[17] Zeus Development Corporation. World Liquid Natural Gas Review, 2001. http://www.lngexpress.com/lngrev/intro_sglocs.asp

[18] Motavelli, J. Black Gold. E Magazine, November-December 1999. http://www.emagazine.com/november-december_1999/1199curr_caspain.html

exploration and extraction activities have also impacted negatively on sturgeon stocks, due to rising pollution, particularly around older oil fields.

Rapidly intensifying drilling and extraction activity and weak safety inspection monitoring in the Caspian region has led to an increase in the number of accidents, such as gas explosions, derailed tankers, and pipeline explosions, attracting media attention[19]. This issue is going to become more and more important as economic and extraction activities further intensify.

Air Pollution

The Central Asian region had some of the most polluted air quality in the former Soviet Union. Of the 35 cities with the worst rating, 10 belonged in the region in early 1990s: Almaty, Dzhambul, Ust-Kamenogorsk and Zyryanovsk—in Kazakhstan, Almalyk and Ferghana—in Uzbekistan, Bishkek and Osh—in Kyrgyzstan, Dushanbe in Tajikistan, and Chardzhou in Turkmenistan[20].

During the economic crisis that followed the Soviet implosion, when most industrial plants and factories closed or decreased production, there was an improvement in air quality. As the industry started to pick up pace by 1997-98, however, air emissions increased.

Although there are few clearly articulated tensions among the states regarding air quality concerns, the issue is a part of the regional agenda for cooperation, as well as a part of the Clean Air Initiative by the World Bank[21].

Soil Degradation

More than 60% of land in Central Asia is affected by desertification.[22] Large areas of Uzbekistan, Kazakhstan and Tajikistan require special attention from the government for restoration of fertility.

Waterlogging and salinity present two major land quality problems in the region. In all five countries, maintenance of the water canals, drainage networks and irrigation schemes has been largely neglected in the 1990s. In Tadjikistan, a mountainous country, irrigation in foothill zones induces groundwater recharge, intensifies waterlogging and salinization of the lower areas. In Uzbekistan, 50% of the irrigated land is considered to be saline, with high concentration up to 95% in downstream areas, especially in Karakalpakstan. These issues are linked to water scarcity and overexploitation of the existing resource.

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[19] Golden Eagle Services Newswire, October 2002.
[20] Source: USSR Goskompriroda, 1990, from Table 2.5 in Peterson, DJ (1993), Troubled Lands, Westview Press.
[21] See http://www.worldbank.org/wbi/cleanair/caieca/learningactivities/Bratislava_presentations/cai.pdf
[22]GEO-3 Report
http://www.grid.unep.ch/data/other/GEO3_Comp_www/geo3_report/pdfs/Chapter%202%20Land.pdf

Figure 9.   Selected Agricultural Productivity Indicators

Countries	ha of arable land per person	Arable land use as % of land area	Irrigated Land as % arable	% of irrigated land subject to salinity	% of irrigated land requiring drainage	Agriculture as % GDP 1998
Kazakhstan	2.12	11.2	6.1	10	30	9.0
Kyrgyz Republic	0.31	7.0	70.4	11	69	46.0
Tajikistan	0.14	5.4	83.4	16	83	6.0
Turkmenistan	0.32	3.5	87.8	37	70	25.0
Uzbekistan	0.20	10.8	89.0	50	77	31.0

Source: WDI 2000; FAO Production Yearbook, Aquastat; World Resources Institute[23]

Biodiversity Loss

Desertification in the area of Aral Sea Basin led to the disappearance of aquatic biota. Wildlife habitat is being lost due to overgrazing, excessive and often unauthorized hunting, and illegal trade in endangered species. Existing forests are very fragile; aside from deficiencies in past management, present illegal cutting for construction and firewood further deplete this resource. Scope of protected areas is limited [see Figure 10] and there is a lack of administrative capacity and resources to manage and monitor existing ones.[24]

Figure 10: Protected Areas

Countries	'000 km	As % of land area
Kazakhstan	73.4	2.7
Kyrgyz Republic	6.9	3.6
Tajikistan	5.9	4.2
Turkmenistan	19.8	4.2
Uzbekistan	8.2	2.1
OECD Average	-	12.6

Toxic and Radioactive Waste

Toxic industrial waste has been dumped and buried extensively throughout the region, adversely affecting water, air and soil quality, in turn having wide health impacts on population and wildlife. The Semipalatinsk nuclear testing site in Kazakhstan, for example, hosted 470 tests between 1949 and 1989 resulting in radioactive fallout on an area as large as 300 000 sq km.

Population awareness of the adverse health impacts of radiation is quite high, based largely on the past legacy of nuclear testing.

Recently, Kazatomprom (the state atomic power company of the Republic of Kazakhstan) proposed to import and bury medium and low-level radioactive wastes from foreign countries, arguing this would generate some $30-40 billion in state revenues over 30 years. The draft law is

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[23] In *Natural Resource Management Strategy: Eastern Europe and Central Asia,* World Bank Technical Paper No. 485, 2000.
[24] National Environmental Action Plans for CA countries, Biodiversity Conservation in Transboundary Protected Areas, National Research Council 1996; WDI 2000.

currently being considered by the parliament, despite vocal opposition from the non-governmental organizations and the Minister of Environmental Protection[25].

In Kyrgyzstan, impacts of uranium mining and toxic waste dumping have similarly resulted in local protests and extensive media coverage of the incidents.

Relevant Policy Processes

A number of collaborative environmental initiatives are underway in the region. The Regional Environmental Centre with head offices in Almaty, Kazakhstan, in 2001, was established to deal with regional transboundary environmental problems. The Centre coordinates dialogue among the states and various agencies, and ensures cooperation with NGOs.

Two primary legitimate transboundary organizations, the Interstate Coordination Water Commission (of the International Fund for Aral Sea) and the Central Asian Economic Community, deal with the rehabilitation of the systems, which control water flow and policy formulation. The primary challenge for these two agencies remains identification of common goals. The International Fund for Aral Sea and the Interstate Commission on Sustainable Development are other focal institutions dealing with the issues of environmental protection and management.

In July 2002, emergency and environment ministers from Central Asian states held a meeting on regional ecological safety issues. They aimed at developing a common strategy for environmental disaster prevention and environmental protection.

Many efforts are directed at the Caspian Sea problem, including the Caspian Environmental Program. Until the legal status of the Sea/Lake is resolved, however, it is hard to predict how integrated environmental cooperation over this body will evolve. It is recognized however that the conflicts in the Caspian region are detrimental to the safe implementation of petroleum projects[26]. A number of projects intended to secure improvements in air quality, water management, waste disposal, and biodiversity conservation are being implemented, but lack regional coordintation in planning and implementation. That was in fact one of the reasons for establishment of the REC.

Rising concerns about drought and declining agricultural production in Uzbekistan have led to revival of long-standing plans to divert Siberian rivers, bringing additional water flow into Amu and Syr Darya rivers feeding the Aral Sea. The plan has been challenged on environmental and economic grounds from several corners[27]. Revitalization of this idea is indicative of the acute water crisis in the region as well the value of a comprehensive regional water management arrangement in reducing uncertainty.

Each of the countries in the region has developed a National Environmental Action Plan, a process initiated largely by the World Bank. Implementation of these is delayed significantly. Governments report that financing pledged has not been delivered by the international donors and financial agencies.

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[25] Golden Eagle Services Newswire, News coverage of Central Asia, November 2002

[26] From the Caspian Environmental Program documents; also see country NEAPs, regional meetings resolutions, and EIA Regional Outlook information: http://www.eia.doe.gov/emeu/cabs/caspenv.html.

[27] "Agricultural Crisis Prompts Uzbek Officials to Revive Interest in Plan to Divert Siberian Rivers", *Environment* May 30, 2002.

The linking of environment with security considerations was raised at the October 2002 Global Mountain Summit held in Bishkek, Kyrgyzstan. Mountainous regions with highly neglected economic and social needs create potential grounds for extremist groups. The source of revenue for such groups is often based on drug-trafficking and weapon trading. The fragility of mountain ecosystems was emphasized at the Summit. A Charter signed by Kyrgyzstan, Kazakhstan and Tajikistan signaled an intent to cooperate in solving environmental and development problems. However, Uzbekistan and Turkmenistan did not sign the Charter.

A number of recent official statements indicate that environment is considered a secondary priority to economic growth[28]. However, a comprehensive Regional Environmental Action Plan, which would define and deal with all transboundary issues, is in the pipeline. REAP is being developed by the Central Asian Interstate Commission on Sustainable Development (ICSD), established in 1993 to address sustainable development and environmental challenges among Central Asian States. The ICSD consists of 15 members, representing Ministries of Environment, Finance and Science—3 from each country. As transboundary issues are linked with security considerations, encouraging cooperation between ICSD and state security and defense agencies may constitute one of the steps towards successful implementation of the Plan in the future. Success of this initiative depends largely on sustained commitment and cooperation on the part of governments and donors.

In the aftermath of September 11th, emphasis in the region has been placed on strengthening military capabilities. A prominent concern impeding further environmental cooperation is that the focus of Western financial assistance may move towards military at the expense of funding for civil society and social investments. In sum, while many of the environmental concerns in the region are recognized as key national priorities with security implications, the extent to which the linkages will be addressed at the political level in Central Asia remains uncertain.

Figure 11.   Environment and Security in the Ferghana Valley

Divided between Kyrgyzstan, Uzbekistan, and Tajikistan, and with over one-fifth of the population of Central Asia, the Ferghana Valley has enormous influence on the socio-economic, political and cultural developments in the region. Half of Kyrgyzstan's population, 27% of Uzbekistan's population and almost one-third of Tajikistan's population live in this valley[29].

Ferghana Valley is a potential flashpoint, due to a number of key issues, including[30]:
• on-going disputes and tension over land and water issues;
• high unemployment;
• incidents in the border areas;
• increased military presence of the three countries;
• growth and radicalisation of opposition groups;
• the influence of the international drug cartels; and
• potential links with international terrorism

[28] REC documents, " Strengthening Institutional Capacity": http://www.neapsd.kz/sitemap.php?lng=rus
[29] Early Warning Report on the Ferghana Valley. Russian Academy of Sciences, Forum on Early Warning and Early Response and Swiss Peace Foundation, December 2001. http://www.fewer.org/casia/ewfv1201.pdf
[30] Early Warning Report on the Ferghana Valley. Russian Academy of Sciences, Forum on Early Warning and Early Response and Swiss Peace Foundation, December 2001. http://www.fewer.org/casia/ewfv1201.pdf; and Incubators of Conflict: Central Asia's Localised Poverty and Social Unrest. International Crisis Group, 2001. http://www.crisisweb.org/projects/asia/centralasia/reports/A400306_08062001.pdf

**CONCLUSION: DEFINING AND PRIORITIZING 'ENVIRONMENT & SECURITY'
ISSUES IN CENTRAL ASIA**

Emerging from our review of the policy, theory and regional concerns related to the links between Environment and Security, we return to the difficult question with which this paper began: what to focus on in the context of this project.

The field of Environment and Security is plagued by different understandings of both terms. It is important to go back to where this paper began, and lay out the basis for a regional definition of 'environment and security' that will enable the identification and prioritization of actions, so that the participants in this project work on the basis of a shared understanding of its scope and approach.

Without attempting a rigorous definition, we offer the following clarifications for the scope of this project. The project shall focus principally on two sets of issues:

> **Environmental sources of stress between communities, regions or countries**, in particular where these have the potential to undermine social and economic stability and lead to conflict.

> **Tools and approaches that can be used to bring about or strengthen cooperation** and good governance between communities, regions and countries such that environmental problems are adequately addressed, social and economic stability is reinforced and conflict is avoided.

While the principal focus will be on environmental issues that negatively affect relations between States or have the potential to do so, we will not exclude local environmental stresses which, because of their potential broader and even transboundary impact, may trigger conflict.

Priority will be given to environmental stresses that are common throughout the region covered by the project, and to environmental and other cooperation mechanisms that apply to all or most of the countries.

In terms of coverage of environmental issues, the project will not unnaturally limit the scope of issues covered. Any issue stemming from the management and use of natural resources and life-support systems, and any major stress on the natural environment is potentially included. What counts is the potential of the issue either to cause social and political tension or conflict, or to serve as a vehicle for remediating the stress and generating cooperation.

In terms of security, the project is not confined to the traditional concept of security – that is the security of frontiers, essential national institutions and strategic supply of resources. The focus is on the security of communities, from acute social tension and from outright conflict caused by environmental factors, or to which environmental factors are a significant contributor.

In summary, addressing the links between environment and security begins with the prevention of violent conflict over increasingly scarce or economically-valuable natural resources. But it also includes addressing large-scale public health concerns as well as natural resource governance limitations and rent-seeking opportunities that create space for the subversion of law and order. More positively, it suggests seeking opportunities for international cooperation over shared environmental concerns, as a means for preventing and defusing resource-related tensions and building confidence.

Key questions to answer in defining the links between Environment and Security of greatest concern at the regional level:

Where might environmental change generate social instability, conflict and in particular, violence, both within and between countries in the region?

Where might trade in natural resources contribute to conflict and insurgency?

Where might environmental cooperation be used as an opportunity for confidence building between parties as well as to address some of the issues raised by the questions above?

Which mechanisms would be required to foster environmental cooperation?

What can we learn from previous and historical experience in the region to enhance transboundary environmental cooperation as a tool for confidence building?

How might these issues be prioritized in terms of their relative importance?

What key messages in this respect should we deliver to political leaders and donor governments in Kiev and Prague in May 2003 ?

Annex I: Further Detail on Environment & Security Links

Characteristics of environmentally-induced conflicts

Ecological factors connected to security include principally environmental degradation and scarcity of renewable natural resources. Scarcity of resources refers both to the inadequate availability of natural resources, such as cropland, potable water and fisheries, and to the asymmetrical distribution of these resources. Environmental degradation refers to anthropogenic environmental problems such as climate change, ozone depletion, species loss and environmental pollution. As resource scarcity and environmental degradation are inextricably linked – scarcity can lead to further over-exploitation and thus degradation, degradation leads to scarcity – the two concepts are subsumed in the following under the term "environmental stress".

Environmental factors lead by no means directly to violent conflict; they are rather one strand within a complex web of causality in which are intertwined a series of socio-economic problems such as overpopulation, poverty, forced mass migration, refugee movements, hunger and starvation, political instability and ethno-political tensions. Environmental degradation and natural resource scarcity are both causes and outcomes of these socio-economic problems or are intensified by these. The increasing scarcity of freshwater resources, the loss of biodiversity, desertification, global climate change and rising sea levels are primarily the outcome of anthropogenic processes.

These negative environmental changes are the result of resource-intensive and waste-generating patterns of production and consumption, and of inefficient agricultural practices which, in combination with the above-mentioned socio-economic problems, can create national and international security risks (see for a general overview in particular Brock 1991; Homer-Dixon 1991, 1994; Baechler et al. 1993, 1996; Dabelko/Dabelko 1995; Gleditsch 1997, Carius/Lietzmann 1999).

The civil wars in Rwanda and Sudan, mining conflicts in the Southern Pacific, the water conflicts in the Jordan River Basin and the Euphrates and Tigris River Basins, or the intra- and interstate tensions on the Indian subcontinent bear testimony to the political volatility of environmentally-induced conflicts. These are, however, mostly limited to underdeveloped regions with a lack of development policy alternatives, to regions whose history makes them prone to conflict and where crises and conflicts are evidently an inherent part of their development. The conflicts are mainly intrastate in nature, with varying conflict intensities over long periods of time (ranging from latent crisis through to outright civil war – partly with transboundary dimensions).

The environmental contribution to insecurity becomes increasingly relevant as the scale of analysis is shifted downwards towards the community level, and upwards beyond the state. While a careful review of evidence shows that states are unlikely to go to war over shared water resources[31], for example, conflict over access to natural resources is a reality in many local communities[32].

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[31] Wolf, A. *Water and Human Security*. Aviso Issue No. 3, GECHS Project, 1999. http://www.gechs.org
[32] Buckles, D. (ed.) Cultivating Peace: Conflict and Collaboration in Natural Resource Management. IDRC/World Bank, 1999.

Environmental degradation is by no means the sole and direct cause of violent conflicts. Rather the various forms of environmental degradation and resource depletion have a triggering or accelerating effect on conflicts. It is commonplace to speak of "water conflicts" in reference to the conflicts over freshwater in the Jordan River Basin or in the catchments of the Euphrates and Tigris Rivers. In fact, however, the dispute over water resources is a manifestation of conflicts whose roots go deeper and are the expression of historical power policy, strategic, geographical and ethnic struggles. Crises of environmental degradation and resource scarcity thus exacerbate and accentuate already existing development crises.

Environment-related conflict can develop not only as a consequence of resource scarcity, but also from competition over abundant valuable natural resources. A growing body of studies has focused on whether 'greed', 'grievance' or some combination drives war, focusing predominantly on the incentives for violence created by trade in valuable natural resource commodities – timber, oil, diamonds and other minerals[33]. By taking control over these resources, armed groups can use the revenues generated not only to satisfy individual material interests but also to sustain the conflict. As Kaimowitz suggests, "depending on the circumstances, natural resources may be both the end or the means of military conflict. Often they are both"[34].

Causes of environmentally-induced conflicts

As opposed to resource scarcity and competition, environmental degradation and depletion generally only lead indirectly to conflicts, by bringing about negative socio-economic consequences. Thus climatic changes can lead to regional reductions in water availability, causing parts of the population to migrate to other, already overpopulated regions, generating further scarcities there, e.g. of agriculturally utilizable soil, food or firewood. They can lead to intensified agriculture and thus land use and erosion, in turn causing flooding and migration. Figure 2 illustrates schematically the interactions between environmental stress and resulting socio-economic effects, such as poverty, migration and refugee movements. The relationships shown in the figure are reciprocal, so that the socio-economic factors can in turn lead to environmental stress. The context variables are conflict accelerating or triggering factors.

Context variables of environmentally-induced conflicts

Whether environmental stress indeed harbors conflict or leads to violence depends upon a series of socio-economic context variables, primary conflict factors and cognitive processes. These include cultural circumstances and traditions, ethno-political factors, civil society mechanisms of peaceful conflict resolution, the stability of the interior policy system and, finally, societal, institutional, economic and technological capabilities. It follows that – in addition to regulating consumption and ensuring an equitable distribution of renewable resources – the identified context variables offer points of leverage to prevent such environmentally-induced conflicts.

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[33] Collier, P., *The Economic Causes of Civil Conflict and their Implications for Policy.* The World Bank, 2000; and Berdal, M. and Malone, D. (eds.) *Greed and Grievance: Economic Agendas in Civil War.* IDRC/International Peace Academy, 2000.

[34] Kaimowitz, D. "Resources, Abundance and Competition in the Bosawas Biosphere Reserve, Nicaragua" in Matthew, R., Halle, M. and Switzer, J. *Conserving the Peace: Resources, Livelihoods and Security.* IUCN/IISD, 2002:177.

Environmental changes only lead to conflict in their interactions with other social problems. Furthermore, these social problems, such as poverty, famine, refugees and mass migration already are potential causes of violent conflict when considered on their own. The decisive criterion for the characterization of environmentally-induced conflicts are the environmental stress factors underlying these conflicts, be they an essential determinant of the emergence of the conflict or be they merely an accelerating or triggering factor.

Regarding propensity to generate conflict, disparate *(1) cognitive patterns* initially determine whether an environmental change, be it alone or in conjunction with socio-economic problems, represents a curtailment of sovereignty or of military, economic or public-welfare security and stability. The cognitive patterns of both social groups and state elites are based upon security policy assumptions, values and definitions and accordingly also determine the perception of being affected by non-military threats. Disparate cognitive patterns further influence the other seven factors listed in the following.

A second decisive criterion is the economic dependence of industry and agriculture upon renewable natural resources and thus the *(2) vulnerability* of a state or its elite. Marginalized agricultural societies, in particular, depend greatly upon the availability and equitable distribution of natural resources. In many cases, the absence of economic alternatives means that an increasing scarcity of resources leaves scarcely any other source of income and thus development options.

The vulnerability of an economy or a state as a whole depends strongly upon *(3) economic, technological and institutional capabilities*. These variables pertain to the treatment of both environmental problems and the consequential socio-economic problems. This is a matter of whether or not there are appropriate environmental policy institutions at the national, regional and local levels, such as a functioning environmental administration, legal and economic instruments by which to regulate resource consumption and a monitoring system. It is also a matter of the potential for creating economic alternatives for developing societies, the ability to engage in long-term planning processes, the ability to adopt strategic policies and the integration of state and non-state resources and capabilities.

(4) Cultural and ethno-political factors have a more direct link to conflict. Different ethnic groups are not per se conflict-oriented (meaning conflicts involving a substantial probability of violence), even under constrained geographic conditions, but do then represent a conflict potential if these ethnic differences are also perceived politically as a problem. The magnitude of conflict potentials of the ethno-political type results from the relative sizes of the various ethnic groups, from disparities in their positions in society, and from the historical process of their integration and representation in legitimated state institutions (Baechler 1998: 91). In addition, ethno-political tensions or crises can generally be traced to culturally and historically conditioned conflicts which are the outcome of power struggles or experiences of domination.

(5) The violence potential and readiness to exercise violence of the actors in conflict decisively determine whether the boundary lines between political and diplomatic tensions, political crises and violent conflicts are crossed. The capacity and readiness to exercise violence depend to a great degree upon whether actors are in a position to convince a critical number of individuals of the correctness of their position in the conflict. A precondition to violence is thus a sufficiently large, strategic group of individuals acting purposively. This is why migration need not necessarily lead to violent conflict. It is a characteristic of migratory peoples that they adapt their ways of life and husbandry to the momentary, changing location, and that, due to the absence of long-term links, they can not develop the potential for violent conflict resolution. Readiness to

exercise violence thus requires the presence of corresponding institutionalized structures for exercising violence, such as state military structures or the existence of armed units outside of the state military.

Ethno-political tensions and intrastate crises further depend upon (6) the stability of a political system and the rule of law as a whole. Governments rendered unstable, e.g. through frequent change of government or through a lack of democratic legitimization of decision-makers and elites, weaken the political stability of a state and increase the susceptibility to crisis, both internal and external. From the perspective of susceptibility to crisis, the notion of "rule of law" embraces all conceivable participatory mechanisms. For the criterion of participation, it is decisive that all groups in society have equal access in social and political consensus-building and decision-making, and that these rules are recognized by the groups.
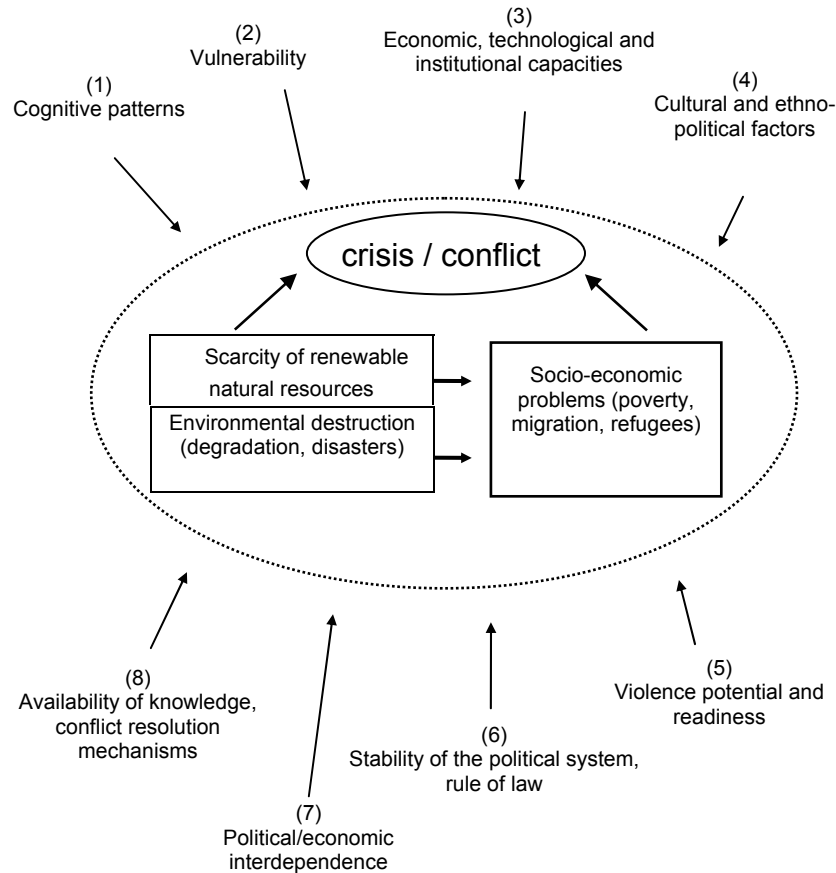

Figure. **Context variables of environmentally-induced conflicts**
Source: Carius/Imbusch 1999: 21

A variable of importance in cross-border conflicts, in particular, is the political and economic (7) interdependence, both regional and international. Integration in the narrower sense in regional security partnerships, but also integration in the broader sense in the world market, of developing countries in particular, decisively influences the susceptibility of states to crisis. The

interdependence of markets can contribute both to stabilizing trade relations and to the direct transfer of technological and financial support and indirect transfer of capital and know-how.

A final component that merits attention is (8) the availability of knowledge and the availability of proven conflict resolution mechanisms. Contrary to the potential of and readiness to exercise violence, the decisive criterion here is the capacity to resolve conflicts, more precisely to resolve them by peaceful means. Such means can include institutionalized dispute settlement procedures, arbitrage tribunals and mediation procedures, but also forms of dispute settlement without the involvement of third parties.

In sum, environmentally-induced conflicts display the following characteristics:

First, environmental changes, increasing scarcity of natural resources or rising opportunities for rent-seeking behavior, play a *decisive* role in the emergence of conflicts – namely by decisively accelerating or triggering social problems. As yet, the causative capacity of environmental stress or competition for control as a conflict accelerating or triggering factor can only be ascertained in individual case studies.

Second, environmentally-induced conflicts generally operate below the violence threshold, their volatility is thus less visible at first.

Third, they are based on societal and economic problems (including weak or absent governance structures) or non-sustainable human-environment relations in general, making them all the more complex.

Fourth, environmentally-induced conflicts arise mainly in regions with emerging economies and societies undergoing transformation, although in varying manifestations. They are not the result of singular influencing factors but the outcome of (complex) societal aberrations.

Fifth, despite the complexity of the sources of conflict, the environmental components provide a potential for preventive measures. Global environmental policy, in particular, relies on the principles of cooperation and reconciliation of interests. Using this experience, environmental policy instruments or negotiations on environmental problems can be used to peacefully resolve conflicts in which a peaceful solution to other, perhaps more decisive sources of conflict is not possible.

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