

**ENVIRONMENTAL SECURITY: UNITED NATIONS DOCTRINE
FOR MANAGING ENVIRONMENTAL ISSUES IN MILITARY ACTIONS**

VOLUME I

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ABSTRACT

A three-year international assessment of global changes conducted by the Millennium Project¹ identified fifteen global challenges facing the world, reaching into most facets of change, from prospective water shortages to moral and ethical issues. Of the fifteen challenges, six are environmentally related. Environmental threats may well outweigh military threats in the future. This report is an investigation into the roles that might be required of the United Nations and related international organizations and the environmental standards to which they should abide, as well as the conventions and protocols that might be involved in the resolution of future threats to environmental security. Particular emphasis is placed on exploring current and potential UN doctrine for managing environmental issues in UN peacekeeping operations.

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¹ Jerome C. Glenn and Theodore J. Gordon. 1999. *1999 State of the Future: Challenges We Face at the Millennium*, Washington, DC: American Council for the United Nations University.

ABBREVIATIONS

AC/UNU	American Council for the United Nations University	MIT	Massachusetts Institute of Technology
AIDS	Acquired Immune Deficiency Syndrome	NAFTA	North American Free Trade Agreement
ASEAN	Association of South East Nations	NAM	UN Inter-Agency Needs Assessment Mission
BTWC	Biological and Toxins Weapons Convention	NASA	National Aeronautics and Space Agency
CDC	Centers for Disease Control and Prevention	NATO	North Atlantic Treaty Organization
CSCE	Conference on Security and Cooperation in Europe	NGO	Non-governmental organization
DOS	Department of State	NPT	Non-Proliferation Treaty
DPKO	UN Department of Peacekeeping Operations	NST	National Security Council
EC	European Commission	OAU	Organization of African Unity
ECA	Economic Commission for Africa (of the UN)	OAS	Organization of American States
ECOSOC	Economic and Social Council of the UN	OCHA	UN Office for the Coordination of Humanitarian Affairs
ECOWAS	Economic Community of West African States	OECD	Organization for Economic Cooperation and Development
EFTA	European Free Trade Association	SCR	Security Council Resolution
ELI	Environmental Law Institute	SOFA	Status of Force Agreement
EMS	Environmental Management System (ISO 14001)	SOMA	Status of Mission Agreement
ENMOD	The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques	UN	United Nations
EPA	Environmental Protection Agency	UNAIDS	Joint United Nations Program on HIV/AIDS
ESCAP	Economic and Social Commission for Asia and the Pacific (of the UN)	UNCC	UN Compensation Commission
EU	European Union	UNCED	UN Conference on Environment and Development
FAO	UN Food and Agriculture Organization	UNCTAD	UN Conference on Trade and Development
FRY	Federal Republic of Yugoslavia	UNDP	United Nations Development Program
GA	UN General Assembly	UNEP	United Nations Environment Program
GDP	Gross Domestic Product	UNESCO	United Nations Educational, Scientific and Cultural Organization
GEF	Global Environmental Facility	UNHCR	United Nations High Commissioner for Refugees
GNP	Gross National Product	UNICEF	United Nations Children's Fund
HIV	Human Immunodeficiency Virus	UNIOM	UN Iraq-Kuwait Observer Mission
IAEA	International Atomic Energy Agency	UNIDO	UN Industrial Development Organization
IBRD	International Bank for Reconstruction and Development	UNO	UN Organization
ICC	International Criminal Court	UNPROFOR	UN Protection Force
ICRC	International Committee of the Red Cross	UNTAC	UN Transitional Authority in Cambodia
ICSU	International Council of Scientific Unions	USAID	United States Agency for International Development
IDA	International Development Agency	WFP	World Food Program (UN)
IDRC	International Development and Research Council	WHO	World Health Organization
IMF	International Monetary Fund	WSO	World Sustainable Development Organization
IFAD	International Fund for Agricultural Development	WTO	World Trade Organization
INWEH	International Network on Water, Environment, and Health (UNU)		
IO	International Organization		
IPCC	Intergovernmental Panel on Climate Change		
Mercosur	Common Market formed by Argentina, Bolivia, Brazil, Chile, Paraguay, and Uruguay		

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EXECUTIVE SUMMARY

A previous study of environmental security by the AC/UNU Millennium Project,² found uncertainty in the international community about when the United Nations and related international organizations should have leadership responsibility for addressing transborder environmental security threats (including those within a country that have potential transborder consequences).

The purpose of this study is to identify existing UN military doctrine on environmental security, to analyze the ways United Nations forces and related non-military international organizations (IOs) can address current and emerging environmental security issues and threats, and to speculate about future arrangements. The UN's role in both addressing environmental security issues that might lead to conflict and its role in addressing the environmental effects of conflict are explored.

In order to identify preventive, responsive, and remedial environmental security roles for the UN and related international organizations, a review of international conventions, protocols and treaties was performed, including the charters of the UN and its related international organizations. Senior UN officials were interviewed to explore current and potential UN doctrine for managing environmental issues in UN peacekeeping operations.

The research reveals that **there is only one formal environmental security guideline in UN doctrine for military action**. The UN Secretary-General's Bulletin of 6 August 1999 entitled "Observance by United Nations Forces of International Humanitarian Law" states:

*The United Nations force is prohibited from employing methods of warfare which may cause superfluous injury or unnecessary suffering, or which are intended, or may be expected to cause, **widespread, long-term and severe damage to the natural environment**. (paragraph 6.3) [bold emphasis added].*

Secretary-General Kofi Annan's bulletin uses the same language (bold in quote above) as the Geneva Convention's First Protocol authored in 1977, the proposed International Criminal Court's (ICC) Charter (The Rome Statute), and The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD). The latter three international instruments do not refer to a chain of authority as does the Secretary-General's Bulletin.

Environmental security³ is more than just preventing environmental damage from war, as addressed in the above four international instruments. Environmental security threats can also come from ignorance and/or mismanagement of socio-economic activities, terrorism, migration, and natural disasters.

² Jerome C. Glenn, Theodore J. Gordon, and Renat Perelet. 1998. *Environmental Security: Emerging International Definitions, Perceptions and Policy Considerations*. Washington, D.C.: American Council for the UNU.

³ Environmental Security can be defined simply as "environmental viability for life support." More comprehensive definitions are presented in the previously referenced report (footnote 2)

The following chart illustrates a range of environmental security threats and how they may be classified.

Examples of Environmental Security Threats

Figure 1

	<i>By Ignorance and/or Mismanagement</i>	<i>By Intention</i>	<i>Mix of Natural and Human Actions</i>
<i>Within a Country</i>	C.1 Oil spills in Ogoniland Nigeria Aral Sea depletion in Russia Indonesian fires Ground water contamination and fresh water scarcity Hazardous wastes Soil erosion Human settlement and development patterns	C.2 Sarin gas attack in Tokyo subway Chemical attacks and draining marshes in Iraq Poisoning or diversion or misuse of water resources Cadavers in wells	C.3 Floods Famines Salinization Earthquakes Introduction of exotic species
<i>Trans-border</i>	C.4 Rain forest depletion River usage in (Jordan, Nile, Tigris-Euphrates, Yellow) Chernobyl nuclear accident Diminishing biodiversity Ozone depletion Fisheries depletion Global climate change Acid rain and air pollution Poverty Radioactive waste	C.5 Burning oil fields in Kuwait Poisoning water Dam construction and water diversion Biological weapons Water and soil pollution due to military activity	C.6 Solar radiation changes Global warming New, emerging, and drug-resistant diseases such as AIDS and others affecting plants and animals Desertification Population growth Rich-Poor gap

A NATO study suggests an alternative typology. In the report *Environment & Security in an International Context*,⁴ four general types of environmental conflict are identified:

- ethno-political conflicts
- migration conflicts (internal, cross-border and demographically caused migration)
- international resource conflicts
- environmental conflicts due to fundamental global environmental change

⁴ NATO. *Environment & Security in an International Context*. 1999. Report No. 232. Bonn, Germany.

There are many international instruments that relate to preventive, responsive, and remedial roles for environmental security threats due to causes other than war, but they lack enforcement capacity without UN Security Council resolutions or appeal to the proposed International Criminal Court.⁵ 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.

The following chart can help illustrate the range of potential roles for the UN in addressing environmental security:

Range of Potential UN Environmental Security Roles

Figure 2

<i>UN's role in addressing environmental <u>effects</u> of conflict within a country or transborder</i>	<i>UN's role in addressing environmental <u>causes</u> of conflict within a country or transborder</i>
<p>By UN force: How the law binds the UN forces and their action</p> <p>By non-UN force: what UN mandate might prevent or punish others' illegal actions</p>	<p>Through intervention before the conflict</p> <p>Through intervention during the conflict</p> <p>Peacekeeping and/or other UN or related IOs after the conflict</p>

Key articles of international treaties, conventions, and protocols that might be used to address these circumstances are discussed in Chapter 2 and listed in Volume II of this report, along with relevant articles of International Organizations.

Although the interviews found that little attention is currently being given to environmental security at the UN, there was great interest expressed in exploring this possibility in greater detail and an understanding that such threats are increasing and require more attention. As a result, it is likely that greater awareness and acceptance within UN circles will be created for the need to factor environmental security into the planning and implementation of peacekeeping operations and to explore how the UN and related organizations might intervene to prevent conflict due to environmental stress.

⁵ It should be noted that the Secretary-General's Bulletin reiterates current UN practice that "In cases of violations of international humanitarian law, members of the military personnel of a United Nations force are subject to prosecution in their national courts." (Section 4) In the absence of this assurance, there is widespread agreement that few nations would make troops available to peacekeeping operations.

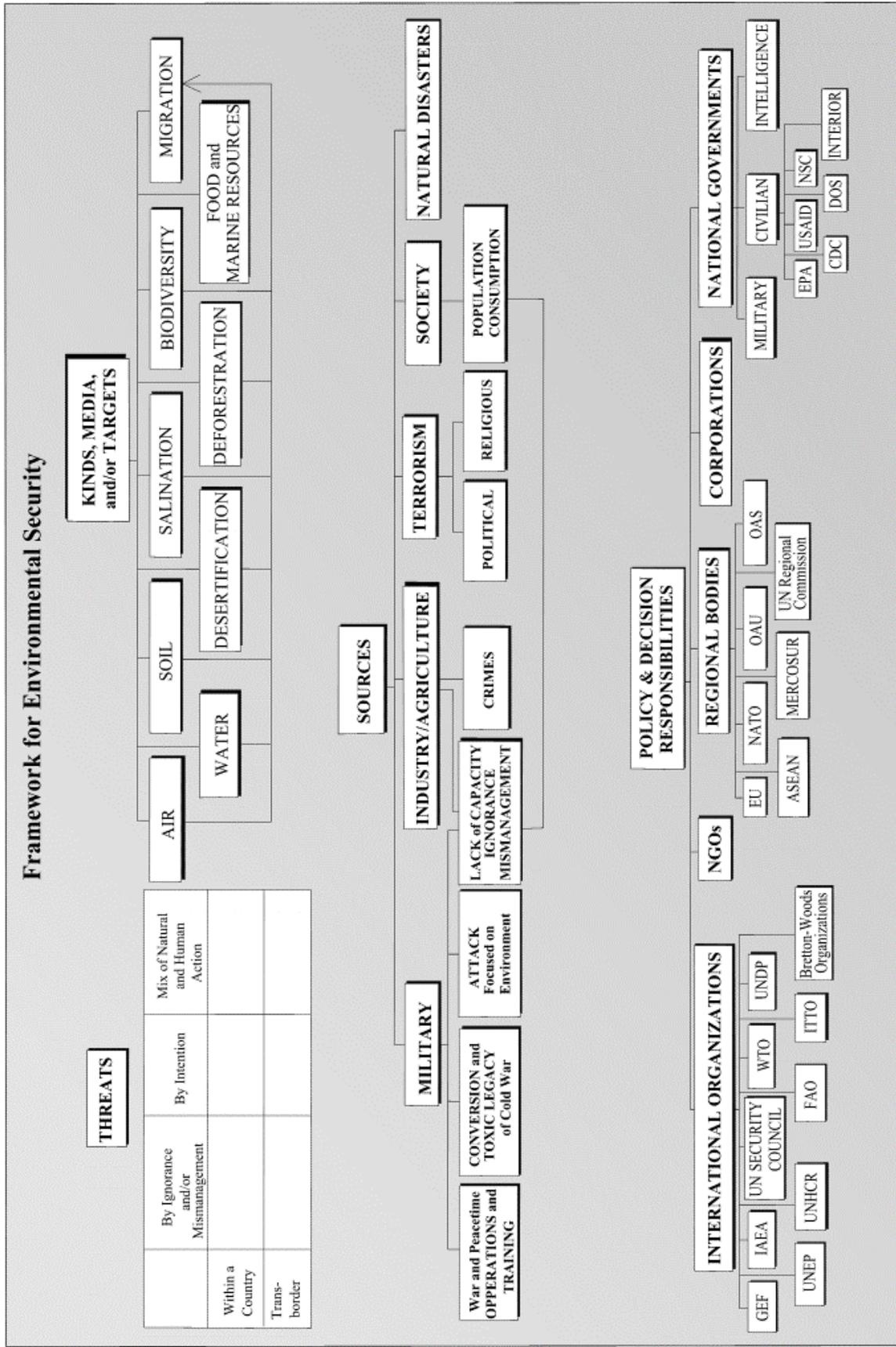
This new awareness is likely to express itself in the development of standards and guidelines governing in-theater operations.

Eventually, some kind of UN-authorized mechanism will have to be established to send teams to document environmental security threats within one country that would affect another country. Following the findings of such teams, an additional mechanism will have to be established to act on the findings⁶. One such mechanism was suggested in 1997 by U.S. Ambassador John McDonald, Executive Director of the Institute for Multi-Track Diplomacy. Ambassador McDonald recommended the establishment of a UN Environmental Mediation Program to train environmental mediators, establish national environmental mediation centers, assist national research programs, and set up an international panel of environmental mediators to be on call to help resolve transboundary disputes (see Appendix C).

The following chart (Figure 3) can act as a framework for thinking through the broad nature of environmental security and related issues throughout this report.

⁶ The idea of UN teams to identify future problems is different but related to the UN teams sent after the Gulf and Yugoslav conflicts. One can now suggest that such practices be institutionalized and integrated into existing UN facilities dealing with international conflict (and, possibly, international terrorism).

Figure 3



CHAPTER 1. UN ROLE: ENVIRONMENTAL EFFECTS OF CONFLICT

1.1 ENVIRONMENTAL SECURITY IN DOCTRINE

There is only one formal environmental security guideline in UN or related international organization doctrine for military action. The UN Secretary-General's *Bulletin* of 6 August 1999 entitled "Observance by United Nations Forces of International Humanitarian Law" states:

The United Nations force is prohibited from employing methods of warfare which may cause superfluous injury or unnecessary suffering, or which are intended, or may be expected to cause, widespread, long-term and severe damage to the natural environment. (paragraph 6.3)

Secretary-General Kofi Annan's bulletin uses the same language as the Geneva Convention's First Protocol authored in 1977, which outlaws "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term, and severe damage to the natural environment."

Additionally, the International Criminal Court's (ICC) charter (the Rome Statute), Article 8(2)(b)(iv) uses the same language to define war crimes related to the environment as: "...widespread, long-term, and [causing] severe damage to the natural environment." The charter was completed in July 1998 with a 120 to 7 vote for approval. The United States was one of the seven countries who voted against it. Nevertheless, it is expected that the ICC will open within three years as the permanent mechanism for prosecuting war crimes.

The August 1999, Secretary-General's Bulletin and the ICC's charter did not define "widespread," "long-term," or "severe." However, Protocol One of the Geneva Convention had an official commentary that defined "long-term" as "measured in decades." Unfortunately, this definition would require either waiting years to see if the environmental damage persists or accepting long-range forecasts of impacts before deciding whether the standard has been violated.

This same language is also used in Article One of the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD): "Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injure to any other State Party." According to the Environmental Law Institute (ELI),⁷ ENMOD

...has been interpreted to define "widespread" as "encompassing an area on the scale of several hundred square kilometers"; "long-term" as "lasting for a period of months, or approximately a season"; and "severe" as "involving serious or significant disruption or harm to human life, natural and economic resources, or other assets."

⁷ Jay Austin and Carl Bruch. 1999. *The Greening of Warfare: Developing International Law and Institutions to Limit Environmental Damage During Armed Conflict*, Washington, D.C.: Environmental Law Institute.

However, ELI goes on to say that this interpretation cannot necessarily be extended to the other three uses of this language, since it referred only to ENMOD, a convention different in character from the other instruments.⁸ Nevertheless, the UN Secretary-General's *Bulletin* is very new and it remains to be seen how definitions may evolve.

1.2 ENVIRONMENTAL SECURITY IN UN PEACEKEEPING OPERATIONS

While the UN has a Department of Peacekeeping Operations (DPKO), the function is without specific authorization in the UN Charter. Peacekeeping has been characterized as “Chapter 6 ½” of the Charter, falling between Chapter 6 on pacific settlement of disputes and Chapter 7 on action with respects to the peace, breaches of peace, and acts of aggression.

In the absence of an entity devoted to peacekeeping — whether autonomous specialized agency (food, health, labor) or a semi-autonomous program (refugees, population, children) — the basic document creating and governing a peacekeeping operation is a Security Council Resolution.⁹

A second essential element of a peacekeeping operation is the Status of Forces Agreement (SOFA) or Status of Mission Agreement (SOMA) negotiated with the host country or countries.¹⁰

While the scope of this brief study would not permit a detailed review of all Security Council resolutions on peacekeeping, one of the authors of this report, Joe Sills, having been intimately familiar with the scope and content of these resolutions during his UN career, recalled no reference in any of them to environmentally related mandates to govern activities of UN forces. A selective review of a number of resolutions confirmed this. Further, telephone interviews with officials of both DPKO and the Security Council Division of the Department of Political Affairs confirmed that **no mandates or instructions regarding environmental security in the theater were included in any Council resolution.**

Surprisingly, UN sources state that there are no references to environmental standards or goals in the “model SOFA,” nor could they recall any in various agreements as negotiated with countries hosting UN operations, even as regards such basics as cleanup following departure. It was indicated that, on a case-by-case basis, individual contingents would work these matters out with local officials at the time of departure, but without formal guidance.

⁸ In correspondence with Jay Austin, he notes: "The ENMOD definition is less restrictive, but also less relevant: it deals not with *collateral* environmental damage from a standard military attack, but with deliberate manipulation of environmental forces for military purposes. Short of bombing dams, or the cloud-seeding that the U.S. allegedly engaged in over North Vietnam, it's hard to imagine a real-world scenario to which it would apply."

⁹ James Sutterlin. 1995. *The United Nations and the Maintenance of International Security*. Westport, CT. & London: Praeger. At page 24, Sutterlin notes that while a few earlier peacekeeping operations were authorized by the General Assembly: “It is now generally accepted, however, that only the Security Council can authorize the deployment of peacekeeping forces.”

¹⁰ A SOFA is negotiated where the UN presence is primarily military; a broader SOMA covers areas where, in addition to a military presence, the UN provides such elements as election monitors, civilian police, etc. As negotiated with host governments, these are confidential agreements. They are based on a model agreement dating back to the 1980s; efforts to update it have been, to date, unsuccessful. Thus, each SOFA and SOMA as negotiated will have a large number of *ad hoc* provisions specific to the individual operation.

Following the termination of the UN Protection Force (UNPROFOR), the government of Bosnia and Herzegovina presented the UN with a bill for some \$70 million for various items, including some alleged environmental damage. However, the UN did not accept this claim, and no payment was made.

After the closing of the Kosovar refugee camp in Albania earlier this year, the Albanian government sought funds directly from the United States to return a site (which had been built for use by UNHCR) to its original state. While this matter is still under discussion, there is a possibility that the site as developed could be adapted for an alternate, economically valuable use, rather than dismantling it.

DPKO has issued a series of handbooks for field operations, such as those for civilian police and military observers. Discussions with DPKO confirm that no such handbook or other formal written guideline has been issued dealing with environmental security nor, to the best of their knowledge, has there been consideration of doing so.

In the absence of such guidelines, what environmental rules do UN peacekeeping forces in the field follow? Due to the considerable autonomy contingents have at the operational level, they follow instructions and guidelines promulgated by their governments for their own troops. As a result, these standards vary, perhaps significantly, from contingent to contingent. This variance not only creates discrepancies in actual operations, but also has the potential to create friction between the UN and host governments and people due to uneven attention given to environmental concerns. (Note: *Defining Environmental Security: Implications for the US Army*, Atlanta, Army Environmental Policy Institute, 1998 notes that “the North Atlantic Treaty Organization (NATO) continues to list environmental security, ‘including the reclamation of contaminated military sites, regional environmental problems and natural and man-made disasters’, among its most important priorities.” Interviews suggested that Canada and Australia had particularly good policies in this regard.)

In sum, the link between UN peacekeeping and environmental security has simply not been made within the UN, either conceptually or operationally, nor is there any indication in the literature reviewed or the telephone interviews conducted that the matter has been given any thought, much less serious thought.

1.3 ENVIRONMENTAL CONSIDERATION IN PAST CONFLICT

Professor Bruce Russett of Yale makes the point:

*The locus of a post-Cold War United Nations...should be on human security – not just the security of states which are members of the United Nations, but the security of populations within states.... Peace would require the integration of UN institutions directed toward traditional forms of security from military violence with those parts of the UN concerned with security from poverty and disease and those concerned with the security of political and cultural rights from abuse.*¹¹

In *The Blue Helmets: A Review of United Nations Peacekeeping*¹² neither “environment” nor “United Nations Environment Program” appears in the extensive index. In his introduction, however, then Secretary-General, Boutros Boutros-Ghali, states:

*Early warning mechanisms are among the instruments available to the United Nations in its efforts to prevent conflict.... Its early warning network takes account not only of threats of armed conflict but also of **environmental hazards** [emphasis added], the risk of nuclear accident, natural disasters, mass population movement, the threat of famine and the spread of disease.*

However, there has been no apparent effort to link this general statement to functioning peacekeeping operations, although Mr. Boutros-Ghali does state that “Peacekeeping operations should be part of an integrated approach to peace-building, encompassing political, social, economic, humanitarian and human rights aspects.”¹³ A strong case can be made for adding “environmental” to this list.

The UN has not as yet dealt with environmental implications and the effects of their peacekeeping operations. Rather, the United Nations has established the practice of sending missions to assess environmental impacts of conflicts of international significance after the fact, such as the Gulf War and recently in the Kosovo region. The following examples illustrate this point.

1.3.1 The environmental consequences of the Israeli-Palestinian confrontations were the subject of numerous decisions taken by the UNEP’s Governing Council in the 1980s. Nearly every session adopted a decision condemning Israeli actions that led to environmental damage. A considerable number of decisions were taken on the remnants of military operations — mainly anti-personnel mines.

¹¹ James Sutterlin. 1995. *The United Nations and the Maintenance of International Security*. Westport, CT. & London: Praeger. In his Forward, Bruce Russett is characterizing the views Sutterlin puts forward in the book.

¹² UN Department of Public Information. 1996. *The Blue Helmets: A Review of United Nations Peacekeeping*. New York, 3rd ed.

¹³ Ibid.

1.3.2 In the wake of the Iraqi invasion of Kuwait in August 1990, and following a series of Security Council Resolutions (SCRs) that failed to reverse the Iraqi action, a coalition of forces, acting with Security Council authorization but not under UN command, began an air campaign in mid-January 1991. On 27 February, Kuwait City was liberated by the follow-up ground operation, and on the same day Iraq announced that its armed forces had withdrawn from Kuwait.

Measures to evaluate and compensate for environmental damage caused by the invasion and withdrawal actions (specifically, setting fire to Kuwait oil wells and deliberately spilling oil in the Persian Gulf) were an integral part of the Security Council resolutions giving terms for ending the hostilities. SCR 687, adopted on 3 April 1991, was the longest and probably most complex set of decisions ever taken by the Council. The UN Environment Program (UNEP) was involved in the assessment of the ecological damage.

Section E of the resolution reaffirms Iraq's liability for any direct loss or damage resulting from the invasion, "including environmental damage and the depletion of natural resources as a result of its unlawful invasion and occupation of Kuwait"¹⁴ and called for the creation of a fund, with resources from Iraq's petroleum revenues, and a commission to administer the fund and disburse the awards. The UN Compensation Commission (UNCC) was established by SCR 692 of 20 May, 1991 for adjudicating the amount of damage claims, and the Governing Council of the Commission approved, in December 1996, an award of \$610 million to Kuwait for the costs of extinguishing the oil well fires set by retreating Iraqi troops, and cleaning up the residue.

This was the first time an international entity was ever charged with the assessment and valuation of environmental damage from war, and awarding financial compensation. A side result of the Iraqi invasion and its aftermath was the adoption of a resolution by the UN General Assembly on "the protection of the environment in time of conflict" (GA res. 47/37, November 1992) which stated that

destruction of the environment not justified by military necessity and carried out wantonly, is clearly contrary to international law.

In 1993 and 1994 the International Committee of the Red Cross (ICRC) prepared guidelines for inclusion in military manuals and other materials of information on the laws of war relevant to the protection of the environment during armed conflict. These were drawn from existing international legal instruments – with which the UN General Assembly resolution referred to above had urged states to comply – and also existing State practice. They stated that the general prohibition against destroying civilian properties should also be construed as protecting the environment.¹⁵

However, these ICRC and UN General Assembly efforts related to armed conflict among (and, presumably, within, in the case of the ICRC Guidelines) states are not specifically related to practice of UN peacekeeping operations deployed following (or to prevent) conflicts. The UN Iraq-Kuwait Observer Mission (UNIKOM) was created to deter boundary violations and report on

¹⁴ Security Council Resolution (SCR) 687. 1991, April. Par. 16.

¹⁵ *The United Nations and the Iraq-Kuwait Conflict: 1990-1996*. 1996. United Nations Blue Book Series, Vol. IX. pp. 68

hostile activities. No mention was made in the Security Council Resolution creating UNIKOM of responsibilities related to the environment, other than noting that mines and unexploded ordnance would have to be cleared for safety purposes.

1.3.3 In the case of Cambodia, there is available an authoritative, independent study of the United Nations Transitional Authority in Cambodia (UNTAC) which analyzes UNTAC's operations from conception to termination.¹⁶ Heininger observes that "no [UN] mission has matched that in Cambodia for the scope of responsibilities... or the degree of control exercised by the United Nations over the internal workings of a country."

Two environmentally related concerns were identified early by UNTAC.

First, the advance team included a twenty-person 'mine awareness' group, but no actual clearance operations were undertaken by them. In spite of the early recognition and gravity of the problem, Heininger notes that, "lack of emphasis on mine clearance in the early stages of the UN operation...was to have serious repercussions for reparation efforts later because mine clearance operations could not keep up with demand for mine-free land."¹⁷ It is relevant that the Secretary-General's implementation plan for UNTAC assigned responsibility for assisting with mine clearance, including training and mine awareness programs, to UNTAC's military wing.

Second, "UNTAC early on recognized the serious threat posed to Cambodia's environment and its economic future by overexploitation of natural resources, particularly the rapid depletion of timber stocks and gem mines."¹⁸ It must be noted that the income from these sources was largely financing the Khmer Rouge, which made this concern particularly acute.

One of the two areas in which Heininger gives UNTAC highest marks (the other being the work of the information and education units) was the 'quick impact' projects and civic action programs. These small-scale efforts were undertaken by individual military contingents, frequently on their own initiative and at their expense. Several of them dealt with environmentally related matters, such as providing potable water and sanitation facilities to villages.¹⁹ This type of small-scale project has also been undertaken by other UN peacekeeping operations, for example, by the UN Interim Force in Lebanon.²⁰

1.3.4 A recent United Nations effort not related to peacekeeping operations provides an interesting example. The escalation of violence in Kosovo since 1997 and the NATO air strikes against the Federal Republic of Yugoslavia (FRY) which began in late March 1999 led the Secretary-General to propose, and the government of the FRY to agree, to sending a UN Inter-

¹⁶ Janet E. Heininger. 1994. *Peacekeeping in Transition: the United Nations in Cambodia*. New York: The Twentieth Century Fund Press.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid. pp. 53-4, 116, 120-22

²⁰ Sutterlin. op.cit., p. 34

Agency Needs Assessment Mission (NAM) in May 1999. The NAM visited the FRY in late May, and on 9 June the Secretary-General submitted its report to the Security Council (S/1999/662).

The primary objective of the NAM was “to provide an initial assessment of the emergency needs of civilian populations and of the medium-term rehabilitation requirements in the country in the light of the approaching winter.” This initial assessment was to be followed by a more in-depth assessment, as well as by sectorial evaluations by relevant agencies. A senior representative of the UN Environment Program (UNEP) was a member of the NAM.

The mission’s conclusions related to the environment were centered on the effects of NATO air attacks on more than eighty industrial facilities. The report states:

Damage to oil refineries, fuel dumps and chemical and fertilizer factories, as well as the toxic smoke from huge fires and the leakage of harmful chemicals into the soil and water table, have contributed to as yet unassessed levels of environmental pollution in some urban areas, which may, in turn, have a negative impact on health and ecological systems.

The NAM concluded that a scientific and technical fact-finding mission under UNEP’s lead, also involving UNDP, the UN Economic Commission for Europe, and UN Center for Human Settlements (Habitat) “is urgently called for.”

UNEP moved quickly, conducting a series of missions to assess ecological damage at industrial sites, including taking of samples that were analyzed; going up and down the Danube assessing water quality; and looking at biodiversity issues. These findings were consolidated in the UN report released on 15 October 1999: *The Kosovo Conflict - Consequences for the Environment & Human Settlements*.

UNEP’s responsibilities in the NAM and the follow-up indicate a greater role for UNEP in environmentally-related aspects of military action as they are a part of the overall role of the UN as chronicled in Appendix B.

In the Yugoslavia case, numerous environmental assessment missions have essentially come to the conclusion that there is no Yugoslav eco-catastrophe. Instead, action was urged for several hotspots left by NATO. The finding by the Regional Environmental Center for Central and Eastern Europe (REC) was that there were severe strains on fresh-water and sewage facilities in Albania, due to the need to construct large refugee camps with little time for prior planning. Appendix B is a collection of media statements related to NATO’s bombing campaign in Yugoslavia, as an example of case analysis of environmental consequences of war.

Although the UN has not expressed much interest in environmental security, the academic community has picked it up and is developing the concept. The latest notion of “human security” includes environmental security as its prominent component. It is interesting that in all recent warfare operations, the offensive side ignored environmental effects, while the defensive side usually raised that issue as a collateral one in claiming compensation for damage such as human loss, material damage, etc. UN assistance, including UN peacekeeping forces, was usually invited

(called for) by the defensive party. Sometimes scientists forecast frightening effects of military actions spreading almost all over the globe. That was a conclusion about the environmental impact of oil field fires in Iraq during the Gulf war that was never realized and quickly forgotten.

The lack of UN instructions for its peacekeepers regarding the environment can be partly explained by the lack of coherent (harmonized) position of (and among) nation-states on environmental harm during war/military operations.

The military's activities during peacetime (military ammunition production, storage, waste, transportation, training, etc.) are usually very closely followed and scrutinized by the public with the "right to know" appeals to authorities. They insist that environmental "peacetime" standards for companies should equally be applied to the military.

"Environmental rules" during wartime military activities are much fuzzier and vary from country to country and, as pointed out in the present paper, are difficult to reconcile for UN peacekeepers from different countries. International conventions concerning environmental effects of warfare usually set fairly broad limits. Although it is generally recognized that international environmental conventions are not applicable to warfare situations (unless they specifically deal with military operations such as the ENMOD convention), the Environmental Law Institute is exploring arguments that certain environmental treaties may apply to such wartime situations.

CHAPTER 2. UN ROLE IN ENVIRONMENTAL SECURITY ISSUES THAT COULD LEAD TO CONFLICT

The previous section explored the status of United Nations doctrine regarding environmental damage caused by UN-directed and other military forces. The concept of environmental security also includes environmental damage caused by non-military sources that could lead to conflict.

NATO has recently released a report entitled *Environment & Security in an International Context* that stressed the key role of international agreements in the prevention of conflicts due to environmental stress.

*Taking preventive action on environmental stress thus is the most appropriate approach to preventing environmental conflicts. Such preventive action is needed at all levels, but given that environmental stresses tend to be rooted in transboundary, regional and global environmental problems, **international and regional environmental agreements play a particularly important role in preventing environmental conflict**²¹ [emphasis added].*

There is no comprehensive agreement to address environmental security. Since it is such a broad concept, it may not be possible nor desirable to create such a comprehensive treaty. There is, however, a broad range of conventions and protocols that address environmental security threats.

To document the status of international agreements that address environmental security, a list of threats was drawn from the previous Millennium Project report *Environmental Security: Emerging International Definitions, Perceptions, and Policy Considerations* and matched with the appropriate international treaty, convention, and/or protocol. The results are listed below. A listing of applicable international instruments appears in Volume II of this report.

Examples of Environmental Security Threats

1. Ozone layer depletion
2. Global climate change (rising sea level, changing rain distribution) due to greenhouse gas emission
3. Radioactive waste management; nuclear waste storage tank leakage
4. Radioactive spills from leaking nuclear submarines
5. Nuclear bomb tests
6. Accidents in nuclear plants; low radiation from accidents in old nuclear power plants
7. Environmental impact of war such as the impact of bombing, and use of landmines and chemical and/or biological weapons
8. Environmental modification during war
9. Spills from stockpiles of “old weapons”
10. Oil spill and pollution

²¹ NATO. Committee on the Challenges of Modern Society. 1999. *Environment & Security in an International Context*. Report 232. Brussels, Belgium.

11. Natural disasters: earthquakes, floods, storms, volcanic activities, tornados and hurricanes
12. Food security (examples: famines in Somalia and—potentially—North Korea may induce migration, disease and war)
13. Water scarcity and pollution including ground water contamination
14. Increasing international river usage
15. Soil erosion
16. Salinization
17. Deforestation
18. Desertification
19. Human migration as cause of environmental stress such as settlement in hazardous environments (river basin, coastal flood plains, and earthquake-prone zones) and in ecologically sensitive zones (certain forest, desert, wetland and marine environments)
20. Human migration as effect of environmental stress
21. Human population growth
22. Loss of biodiversity
23. Industrial development; industrial contamination of air and oceans
24. Fishery depletion due to over-fishing
25. Forest fires like those in Indonesia, Australia, Amazonian and Mediterranean countries
26. Transplantation of alien species into new ecosystems
27. New, re-emergent, and drug-resistant diseases
28. Disposal of hazardous/toxic wastes
29. Poverty; growing gap between rich and poor
30. Increasing intensive use of chemical fertilizer, pesticides and detergents
31. Destruction of coral reefs
32. Artificial genetic pollution

Some of these threats are anticipated by existing conventions, protocols and treaties; these are summarized in Figure 4.

Anticipated Threats and Measures in Place

Figure 4

<i>Environmental Security Threats</i>	<i>Treaties, Conventions, and Protocols</i>
1. Ozone layer depletion	<p>In Force</p> <ul style="list-style-type: none"> • Vienna Convention for Protection of the Ozone Layer '85 (U.S. ratified) • Montreal Protocol on Substances that Deplete the Ozone Layer '85 (U.S. ratified)
2. Global climate change (rising sea level, changing rain distribution) due to greenhouse gas emission	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Long-Range Transboundary Air Pollution '79 (U.S. ratified) • United Nations Framework Convention on Climate Change '92 (U.S. ratified) • Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution Concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes '99 (U.S. not ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • December 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change (U.S. not ratified) • Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment '93 (European Nations)
3. Radioactive waste management; nuclear waste storage tank leakage	<p>In Force</p> <ul style="list-style-type: none"> • Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal '89 (U.S. not ratified) • Convention on Nuclear Safety '94 (U.S. not ratified) • Convention on Early Notification of a Nuclear Accident '86 (U.S. ratified) • Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency '86 (U.S. ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) • Convention on Biological Diversity '92 (U.S. not ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations) <p>Not in Force</p> <ul style="list-style-type: none"> • Convention on Civil liability for Damages Resulting from Activities Dangerous to the Environment '93 (European Nations)

<p>4. Radioactive spills from leaking nuclear submarines</p>	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Early Notification of a Nuclear Accident '86 (U.S. ratified) • Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency '86 (U.S. ratified) • (If threatening the marine environment) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) • United Nations Convention on the Law of the Sea '82 (U.S. not ratified) • Convention on Biological Diversity '92 (U.S. not ratified) • Convention on the High Seas '58 (U.S. ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations)
<p>5. Accidents in nuclear plants; low radiation from accidents occurring in old nuclear power plants</p>	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency '86 (U.S. ratified) • Convention on Early Notification of a Nuclear Accident '86 (U.S. ratified) • Convention on Nuclear Safety '94 (U.S. not ratified) • (If threatening biodiversity) Convention on Biological Diversity '92 (U.S. not ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage (U.S. ratified)
<p>6. Nuclear bomb tests</p>	<p>In Force</p> <ul style="list-style-type: none"> • Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water '63 (U.S. ratified) • (If done in the Antarctic) The Antarctic Treaty '59 (U.S. ratified) • (If done on the High Seas) Convention on the High Seas '58 (U.S. ratified) • United Nations Convention on the law of the sea '82 (U.S. not ratified) • Convention on Biological Diversity '92 (U.S. ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment '93 (European Nations) • Comprehensive Nuclear-Test-ban Treaty '96 (U.S. not ratified)

<p>7. Environmental impact of war such as the impact of bombing, and use of landmines and chemical and/or biological weapons</p>	<p>In Force</p> <ul style="list-style-type: none"> • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage (U.S. ratified) • Convention on Biological Diversity '92 (U.S. not ratified) • Convention on the Development, Production and Stockpiling of Bacteriological and Toxin Weapons, and on their destruction '72 (U.S. ratified) • Convention on the Prohibition of the Development, Production, Stockpiling and the Use of Chemical Weapons and on Their Destruction '93 (U.S. ratified) • Protocol 1 to the Geneva Conventions '77 (U.S. not ratified)
<p>8. Environmental modification caused by war</p>	<p>1. General</p> <p>In Force</p> <ul style="list-style-type: none"> • Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques '76 (U.S. ratified) • Protocol 1 to the Geneva Conventions '77 (U.S. not ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment '93 (European Nations) <p>2. Effects on atmosphere, ozone layer and climate change</p> <p>In Force</p> <ul style="list-style-type: none"> • Vienna Convention for the Protection of the Ozone Layer '85 (U.S. ratified) • Montreal Protocol on Substances That Deplete the Ozone Layer '85 (U.S. ratified) • Convention on Long-Range Transboundary Air Pollution '79 (U.S. ratified) • United Nations Framework Convention on Climate Change '92 (U.S. ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • Kyoto Protocol to the United Nations Framework Connection on Climate change '98 (U.S. not ratified) <p>3. Water pollution</p> <p>In Force</p> <ul style="list-style-type: none"> • Convention on the Protection and use of Transboundary Watercourse and International Lakes (European Nations) • United Nations Convention on the Law of the Sea '82 (U.S. voluntarily adheres to) • Convention on the High Seas '58 (U.S. ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations) <p>4. Effects on biodiversity</p> <p>In Force</p>

	<ul style="list-style-type: none"> • Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) • Convention on Biological Diversity '92 (U.S. ratified) • Convention on Wetlands of International Importance Especially as Waterfowl Habitat '71 (U.S. ratified) <p>5. <i>Dumping of wastes</i></p> <p>In Force</p> <ul style="list-style-type: none"> • Basel Convention on Transboundary Movements of Hazardous Wastes & Their Disposal '89 (U.S. not ratified)
<p>9. Spills from stockpiles of environmentally dangerous “old weapons”</p>	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Biological Diversity '92 (U.S. ratified) • (If bacteriological or toxin) Convention on the Development, Production and Stockpiling of Bacteriological and Toxin Weapons, and on Their Destruction '72 (U.S. ratified) • Convention on the Prohibition of the Development, Production, Stockpiling and the use of Chemical Weapons and on Their Destruction '93 (U.S. ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment '93 (European Nations)
<p>10. Oil pollution such as oil spills and leakage</p>	<p>In Force</p> <ul style="list-style-type: none"> • (If threatening biodiversity) Convention on Biological Diversity '92 (U.S. not ratified) • (If threatening to cultural and natural heritage) The Convention on the Protection of World’s Cultural and Natural Heritage (U.S. ratified) • (If threatening to the marine environment) United Nations Convention on the Law of the Sea '82 (U.S. not ratified) • Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships '73 (does not apply to warships) (U.S. not ratified) • International Convention of the Prevention of Pollution of the Sea by Oil (does not include naval ships) (U.S. ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations) • International Convention on Oil Pollution Preparedness, Response and Co-operation '90 (does not apply to warships) (U.S. ratified)

<p>11. Natural disasters: earthquakes, floods, storms, volcanic activities, tornados and hurricanes</p>	<p>In Force</p> <ul style="list-style-type: none"> • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) • (If threatening biodiversity) Convention on Biological Diversity '92 (U.S. not ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • (If causing industrial accidents) Convention on the Transboundary Effects of Industrial Accidents '92 (U.S not ratified)
<p>12. Food security (examples are famine in Somalia and, potentially, North Korea)</p>	<p>In Force</p> <ul style="list-style-type: none"> • (If caused by loss of biodiversity) Convention on Biological Diversity '92 (U.S. not ratified) • (If caused by over-fishing) Convention on Fishing and Conservation of the Living Resources of the High Seas '58 (U.S. ratified) • International Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa '94 (U.S. not ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • (If caused by warfare) Protocol 1 to the Geneva Conventions '77 (U.S. not ratified)
<p>13. Water security: sufficient and secured access to water</p>	<p>In Force</p> <ul style="list-style-type: none"> • International Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification Particularly in Africa '94 (U.S. not ratified) • Convention on the Protection and use of Transboundary Watercourse and International Lakes (European Nations) • (If sea water is the source of drinking water) Protocol to the 1979 Convention to the International Convention for Preventing Pollution from Ships'78 (U.S. not ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations)
<p>14. Increasing international river usage</p>	<p>In Force</p> <ul style="list-style-type: none"> ▪ Convention on the Protection and Use of Transboundary Watercourse and International Lakes (European Nations)

15. Soil erosion	<p>In Force</p> <ul style="list-style-type: none"> • International Tropical Timber Agreement '83 (U.S. not ratified) • International Tropical Timber Agreement '94 (U.S. not ratified) • Convention on Biological Diversity '92 (U.S. not ratified) • International Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa '94 (U.S. not ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage (U.S. ratified)
16. Salinization	<p>In Force</p> <ul style="list-style-type: none"> ▪ Convention on Biological Diversity '92 (U.S. not ratified) • United Nations Convention on the Law of the Sea '82 (U.S. not ratified)
17. Deforestation	<p>In Force</p> <ul style="list-style-type: none"> ▪ International Tropical Timber Agreement '83 (U.S. not ratified) • International Tropical Timber Agreement '94 (U.S. not ratified) • Convention on Biological Diversity '92 (U.S. not ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) • United Nations Framework Convention on Climate Change '92 (U.S. ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • Kyoto Protocol to the United Nations Framework Connection on Climate change '98 (U.S. not ratified)
18. Desertification	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Biological Diversity '92 (U.S. not ratified) • International Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa '94 (U.S. not ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified)

<p>19. Human migration as cause of environmental stress, such as settlement in hazardous environments (river basin, coastal flood plains, and earthquake-prone zones) and in ecologically sensitive zones (certain forest, desert, wetland and marine environments)</p>	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Wetlands of International Importance Especially as Waterfowl Habitat '71 (U.S. ratified) • International Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa '94 (U.S. not ratified) • Convention on Biological Diversity '92 (U.S. not ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified)
<p>20. Human migration as effect of environmental stress</p>	<p>In Force</p> <p><i>If migration is forced by radioactive contamination</i></p> <ul style="list-style-type: none"> • Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency '86 (U.S. ratified) • Convention on Early Notification of a Nuclear Accident '86 (U.S. ratified) • Convention on Nuclear Safety '94 (U.S. not ratified) <p><i>If forced by other kinds of environmental contamination</i></p> <ul style="list-style-type: none"> • Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons, and on Their Destruction '72 (U.S. ratified) • Convention on the Prohibition of the Development, Production, Stockpiling and the Use of Chemical Weapons and on Their Destruction '93 (U.S. ratified) • Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal '89 (U.S not ratified) • Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (U.S. ratified) • Convention on Long-Range Transboundary Air Pollution '79 (U.S. ratified) • Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution Concerning the Control of Emissions of Nitrogen Oxides or Their Transboundary Fluxes '88 (U.S. not ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • Convention on the Transboundary Effects of Industrial Accidents '92 (U.S. not ratified)
<p>21. Human population growth</p>	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Fishing and Conservation of the Living Resources of the High Seas '58 (U.S. ratified) • (If threatening biodiversity) Convention on Biological Diversity '92 (U.S. not ratified)

<p>22. Loss of biodiversity</p>	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Biological Diversity '92 (U.S. not ratified) • Convention on International Trade in Endangered Species of Wild Fauna and Flora '73 (U.S. ratified) • (If threatening natural and cultural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) • Convention on Fishing and Conservation of the Living Resources of the High Seas '58 (U.S. ratified) • United Nations Convention on the Law of the Sea '82 (U.S. not ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations) • (If caused by oil pollution) Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships '73 ('78) (U.S. not ratified) • International Convention of the Prevention of Pollution of the Sea by Oil (U.S. not ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment '93 (European Nations)
<p>23. Industrial development; industrial contamination of air, water, soil</p>	<p>In Force</p> <ul style="list-style-type: none"> • Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal '89 (U.S. not ratified) • Convention on Biological Diversity '92 (U.S. not ratified) • Convention on Long-Range Transboundary Air Pollution '79 (U.S. ratified) • United Nations Framework Convention on Climate Change '92 (U.S. ratified) • Kyoto Protocol to the United Nations Framework Connection on Climate Change '98 (U.S. not ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations) <p>Not in Force</p> <ul style="list-style-type: none"> • Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment '93 (European nations) • Convention on the Transboundary Effects of Industrial Accidents '92 (U.S. not ratified)

24. Fishery depletion due to over-fishing	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Biological Diversity '92 (U.S. not ratified) • Convention on Fishing and Conservation of the Living Resources of the High Seas '58 (U.S. ratified) • United Nations Convention on the Law of the Sea '82 (U.S. not ratified)
25. Forest fires (like those in Indonesia, Australia, Amazonian and Mediterranean countries)	<p>In Force</p> <ul style="list-style-type: none"> • (If threatening biodiversity) Convention on Biological Diversity '92 (U.S. not ratified) • (If threatening cultural and natural heritage) The Convention on the Protection of World's Cultural and Natural Heritage '72 (U.S. ratified)
26. Transplantation of alien species into new ecosystems	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Biological Diversity '92 (U.S. not ratified) • Convention on International Trade in Endangered Species of Wild Fauna and Flora '73 (U.S. ratified) • (If threatening cultural and natural heritage) The Convention on the Protection of World's Cultural and Natural Heritage '72 (U.S. ratified)
27. New, re-emergent, and drug-resistant diseases	
28. Disposal of hazardous/toxic wastes	<p>In Force</p> <ul style="list-style-type: none"> • Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal '89 (U.S. not ratified) • (If radioactive) Convention on Early Notification of a Nuclear Accident '86 (U.S. ratified) • (If underwater and threatening to the marine environment) United Nations Convention on the Law of the Sea '82 (U.S. not ratified) • Convention on Biological Diversity '92 (U.S. not ratified) <p>Not in Force</p> <ul style="list-style-type: none"> • Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment '93
29. Poverty; growing gap between rich and poor	

<p>30. Increasing intensive use of chemical fertilizer, pesticides, and detergents</p>	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Biological Diversity '92 (U.S. not ratified) • (If threatening lives or natural heritage) Convention for the Protection of the World Cultural and Natural Heritage '72 (U.S. ratified) • (If threatening the marine environment) Convention on Fishing and Conservation of the Living Resources of the High Seas'58 (U.S. ratified) • United Nations Convention on the Law of the Sea '82 (U.S. not ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations)
<p>31. Destruction of coral reefs</p>	<p>In Force</p> <ul style="list-style-type: none"> • Convention on Biological Diversity '92 (U.S. not ratified) • United Nations Convention on the Law of the Sea '82 (U.S. not ratified) • The Convention on the Protection of World's Cultural and Natural Heritage '72 (U.S. ratified) • (If caused by oil pollution) International Convention of the Prevention of Pollution of the Sea by Oil (U.S. ratified) • Convention for the Prevention of Marine Pollution from Land-Based Sources '74 (European Nations)
<p>32. Artificial genetic pollution</p>	<p>In Force</p> <ul style="list-style-type: none"> • (Article 15) Convention on Biological Diversity '92 (U.S. not ratified)

CHAPTER 3. SCENARIO SKETCHES

Although not called for in the scope of work, the authors felt that it might be useful to add a section depicting some future scenario sketches of potential environmental security threats that examine the possible responses of UN and related international organizations to illustrate the gaps in current UN procedures. These hypothetical future sketches were submitted to several experts for comments on the legal framework and responsibilities to respond.

SCENARIO 1: NUCLEAR WASTE STORAGE

Nuclear waste will be stored in large quantities in several hundred places in the world. Some of these places will be underground. Since the half-lives of some materials will be on the order of thousands of years, some form of monitoring and site marking will be required. A “Country X” seems to be ignoring the most fundamental requirements for long-term storage. Without some help they will undoubtedly lose track of what they have buried.

Comments

The UN may find a country that would agree to set up a monitoring system and support all the financial and organizational aspects that this system may imply, but the UN has no legal power to require Country X to accept or implement such a system. An example is Chernobyl, where the United States offered a monitoring system and assumed the related costs. This should be a function of the United Nations’ International Atomic Energy Agency (IAEA). IAEA should monitor nuclear waste storage and be prepared to send specifically trained people and equipment to defined nuclear waste areas and to make necessary safety provisions. If radiation was detected in a neighboring country’s ground water, and other means were not available to inspect Country X’s storage containment, then the neighbor might look for military means to protect itself. It is likely that there will be a broad and growing trend to ship nuclear and other hazardous waste to less rich countries for processing and/or disposal that would be attracted by the opportunity of getting hard currency, though giving inadequate attention to safety precautions both against technical/engineering/transport facility leaks and international/national terrorists. (Examples of such voluntary and willing recipient countries are many, including Nigeria, China, and Russia.)

SCENARIO 2: SOLID WASTE

A poor Country X has made a business of taking in solid wastes from richer countries around the world. Although they have made some money from the practice, the place is becoming a garbage heap. Strong opposition is developing within the country and civil war may erupt that could spill across the border.

Comments

This is initially a national issue. The concept of national sovereignty is critical in this example. If the affected country wants to have a civil war, there is, under traditional international law, no power that has a right to intervene. However, since a civil war in such a country could lead to

increased environmental damage that could spread to neighbor countries, there is a right of self-defense involved. That could be brought to the UN Security Council.

SCENARIO 3: PARTICULATE EMISSION FROM POWER PLANTS AND FACTORIES

China is burning indigenous high sulfur coal. The acid rain that is produced falls on California. Further, the atmospheric conditions promise to exacerbate the situation.

Comments

There is no international treaty or law that forces China to do anything about it. The United States, as the most affected country, may put political pressure on China, but it would be a bilateral discussion, outside the UN. Various treaties on transboundary impacts or airborne transport of pollutants may well apply to this case. Conventions concerning acid rain and sulfur emissions are the Convention on Long-Range Transboundary Air Pollution 1979, and two of its Protocols on Reduction of Sulfur Emissions in 1985 and 1994. They are regional conventions which only apply to the European nations; thus China has no legal obligation in this scenario. China has ratified the UN Framework Convention on Climate Change of 1992 in January 1993; however, this convention as such is too weak to have any impact. China has not ratified the Kyoto Protocol. If Chinese sulfur emissions are damaging the marine environment along the coastal regions, the United Nations Convention on the Law of the Sea, which China has ratified in 1997, can be relevant. If the emissions are harming the local biodiversity in California, the Convention on Biological Diversity ratified by China in 1993 may be relevant. However, neither of the conventions has a penalty article and they have not been ratified by the United States.

If acid rain is falling on California, then it is falling on Hawaii. Both of these states have had large Chinese-American populations since the turn of the century. An alternative response is possible. These people could unite into a powerful political and economic force under the leadership of a strong personality, and with diplomatic help from the State Department threaten China with dire economic problems unless they desist particulate emissions. This Chinese-American group could lead a worldwide boycott of Chinese goods. They have relatives all over the world. They can write to their 2nd, 3rd, 4th cousins urging “do not buy Chinese” and they can write to family members inside China to take political actions aimed at getting their government to address this situation.

Currently there is no penalty for not meeting the Kyoto Protocol targets, even if China were to ratify the convention, as have other developing countries.

SCENARIO 4: EXPLOITATION OF MINERAL RESOURCES WITHOUT EFFECTIVE MANAGEMENT

Country X has a mineral resource, say uranium, which is clearly limited on a global basis and could be useful in the future. Nevertheless, the country has established a policy of land use that makes this resource inaccessible. If the world does nothing, the resource will be inaccessible for the next 200 years.

Comments

This relates to the local policy of the country in charge. Country X can be asked to the World Court, but it may refuse to go. The UN General Assembly can pass a resolution (that is without any legal power), public pressure can be created, but nothing can oblige Country X to change its policy. Perhaps it would be a good thing to save the resource for the next 200 years. However, Country X should be urged to establish a land use policy that will permit exploitation of uranium resources 200 years from now. Such a land use policy could come into being by diplomatic maneuvers or, if necessary, sanctions. This could be a future issue for WTO.

SCENARIO 5: DISEASE EPIDEMICS

A vaccine or antidote for Ebola has been found in a derivative of a forest plant. The country in which the plant has been found has decided to embargo all uses of the plant because it believes that the Ebola virus may ultimately be a weapon and it wants to reserve the medicine for itself.

Comments

This is a national sovereignty issue. The UN and any other international organizations have no legal authority to force this country to share its resources.... Scientists value the open sharing of knowledge and are likely to pass the details about how to use the plant to each another informally—perhaps while attending an international conference.

Article 15 in the 1992 Convention on Biological Diversity subverts the sovereign rights of States over the natural sources and their right to determine access to “genetic resources” for the conservation and sustainable use of biological diversity. This convention appears to be the only one that is relevant to this scenario. Nevertheless, the definitions of “genetic resources” and their “environmentally sound use” are too nebulous and weak to have any impact on forming a legal framework in the international arena.

SCENARIO 6: EARTHQUAKE PREDICTION

Seismic transducers lead to the ability to predict earthquakes with fair accuracy both as to timing and intensity. An earthquake has been predicted for Albania. Several million people are in peril. Mass exodus has begun. These are refugees from an *anticipated* event.

Comments

The United Nations High Commissioner for Refugees (UNHCR) and World Food Program (WFP) could volunteer to help the refugees if they leave the country, but within the country, they can't do anything without the approval of the country or a Security Council Resolution, as in the case of food delivery to Somalia.

SCENARIO 7: SPILLS FROM STOCKPILES OF BIOLOGICAL WEAPONS

In attempting to dispose of disease-based weapons (such as Anthrax), Country X has a major spill that imperils the health of 50,000 people who are in the neighboring countries.

Comments

In the example of Chernobyl, nobody could do anything, as Russia didn't agree, saying that they could handle the situation. The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and on Their Destruction very likely would authorize some kind of international intervention in this case, especially if the country was signatory to that treaty.

SCENARIO 8: ENVIRONMENT AS A WEAPON

Despite UN provisions to the contrary, Country X is known to be developing weather control as a weapon. The "cover" is that the research will improve the irrigation of local crops.

Comments

This breaks the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD). The Secretary-General may try to negotiate, or send special representatives to the country, but the host country would have to approve this.

SCENARIO 9: MILITARY INTERVENTION

Some countries recognize the linkage between environmental degradation and regional stability and integrate environmental protection into their military mission. This orientation leads to military intervention by troops on foreign soil into the forest practices of another sovereign nation.

Comments

The Security Council can intervene; Chapter 7 comes into play. The invaded country could appeal to the Security Council for Peacekeeping Forces to provide a buffer between their forces and the allied invasion, and to buy time for a negotiated settlement on forest practices and financial aid.... Still, this is a national sovereignty issue. Nothing was done about the Aral Sea in Central Asia.

SCENARIO 10: SEEMINGLY BENIGN USE OF RAINMAKING

Country X begins to practice rainmaking by seeding clouds over its territory. There is good statistical evidence that it works. Country Y is downwind and argues that it is being robbed of its rightful share of rainfall.

Comments

This is a bilateral issue. Country Y may complain and the UN may designate a facilitation team to investigate and/or to help the two countries negotiate a satisfactory conclusion, but, legally, nothing can be done about it.

SCENARIO 11: DAMMING OF RIVERS

Rivers running through Country X are being dammed by that country to facilitate its agricultural irrigation. The rivers feed a large lake on which several other countries border. The lake is drying up and with it fishing and agriculture in the adjacent countries.

Comments

There are Commissions, totally outside the UN, that exist (e.g., the Danube, the Rhine Commissions) that would be the first forum to use. The UN has no legal power to do anything related to this kind of conflict. For example, the Tigris River is a long-standing matter of dispute between Turkey, on one side, and Syria and Iraq on the other. The latter two complain that their rights were denied, but the UN can do nothing about it; the two sides have to sit down and negotiate. It is the same situation with the Nile, where there are discussions to have a “Nile Commission” or “Nile Convention” among the relevant countries. In the Mekong River case, Thailand, Vietnam, Laos and Cambodia reached basic agreements after many years of discussion.

SCENARIO 12: DISEASED PEOPLE AS WEAPONS

A religious group believes it is time to erase the evils of humanity from the Earth. It infects 50 volunteers with Ebola to make contact with unsuspecting travelers in the ten busiest airports of the world.

Comments

WHO early warning and monitoring system might detect members of the terrorist group while inspecting villages in Ebola areas and notify local authorities to detain them for questioning.

SCENARIO 13: CROP FAILURE

In Country X the wheat crop has failed. It has been attacked by an unknown plant disease. The agronomists in Country X suspect that the crop is a victim of a biological attack from their traditional neighboring enemy state.

Comments

Country X may think that, but they have to prove it. They could request an international scientific inspection mission led by UNEP and FAO to investigate and report their findings to the Security Council.

SCENARIO 14: RUSSIAN–NORWEGIAN NUCLEAR ISSUE

During the 1990s, Norway requested a meeting with Russia and the EC to discuss better management of the nuclear wastes from Russian nuclear submarines and onshore storage tanks. This proved to be ineffective. Finally, gases building up during these years inside a nuclear storage ship called Lepsa, in Murmansk, Russia, exploded. Radioactive waste was thrown into the air and the Arctic Ocean by the steam explosion. Some people have been evacuated from the area between Murmansk and Norway, and the damage has probably been underreported. Radioactive ice is slowly moving to Alaska and contaminated fish are spreading the impact farther. The estimated costs for this cleanup, ranging over the next ten years, are large. The longer-range cleanup costs and economic losses are incalculable.

Comments

An alternative to this scenario sketch is possible. After years of no access to the Lepsa, Norway could have brought the issue to the Security Council, claiming that if the ship explodes, it could be a threat to international peace and security. Citing the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, the Convention on Early Notification of a Nuclear Accident, and the Convention on the High Seas (article 25), the Norwegian Ambassador to the UN could have requested UN force protection for IAEA-nominated UN inspectors to board the Lepsa to recommend how to prevent the potential gas explosion. This discussion in the Security Council could persuade Russia to agree to cooperate with the inspectors. Based on such a success and precedent, NATO might collaborate with Russia to secure the nuclear submarines and the nuclear storage tanks onshore at Severodvinsk (North Harbor). U.S. Senators from Alaska might call for a NATO-Russian team funded by the EU, United States, NATO, Sweden, Norway, Denmark, and Canada, to intercept the “slow motion Chernobyl” from arriving in Alaska and neighboring areas.

SCENARIO 15: NORTH KOREA

A Somalia-like issue of food security might exist in North Korea. In this scenario, UN peacekeeping forces are used to protect the delivery of food from the UN’s World Food Program. In this case, the Security Council has to determine that a threat to international peace and security exists, and act under Article VII of the UN Charter. This creates the problem of asking Member states to provide troops to go into a hostile environment where casualties would be probable.

Comments

The U.S. food delivery program was successful in Somalia, but when the mission evolved into peacemaking, the operation turned into a disaster. Every effort should be taken to prevent this mistake in North Korea.

GENERAL COMMENTS ON SCENARIO SKETCHES

Most of the environmental security scenarios are bilateral. The whole concept of national sovereignty is critical for all these examples. A problem begins in one country but affects other countries. A major concern for the UN must be national sovereignty, which severely limits actions today by the UN or any other international agency without the approval of the country where the problem begins. The UN can pass resolutions condemning the action and can raise public and international interest, but there is no legal framework under which the country would be obliged to change its behavior. An alternative approach by U.S. Ambassador John McDonald (see Appendix C, United Nations Environmental Mediation Program) recommends the creation of a more powerful legal framework for the UN system to address this problem.

Although there is no clear legal framework for almost any of these cases, a rigorous analysis of how the treaties from Section 2 of this report might apply to cover these scenarios would be very interesting. Detailed research into the scope of various treaties is required, including their internal enforcement provisions, which countries are bound by them, etc. A creative international lawyer always tries to find in the detailed treaty language an argument that authorizes enforcement of one or more of the treaties, possibly including UN enforcement.

CHAPTER 4. FUTURE ARRANGEMENTS

Although the interviews of UN officials and other experts found that little attention is being given to threats to environmental security, there was great interest expressed in exploring this possibility in greater detail and an understanding that such threats are increasing and require more attention. As a result, it is likely that greater awareness and acceptance within UN circles will be created for the need to factor environmental security into the planning and implementation of peacekeeping operations. This awareness might manifest itself in the development of standards and guidelines governing in-theater operations.

Increasing involvement of the UN Environment Program (UNEP) in this process seems logical and inevitable. At its inception in 1972, a primary function envisaged for UNEP was to coordinate environmental activities in the UN system. In the matter of UN peacekeeping — a UN activity of tremendous importance — it has performed this role only minimally. During the tenure of Boutros Boutros-Ghali as Secretary General, a new framework for coordination of peacekeeping operations was developed by the Department of Humanitarian Affairs, Political Affairs, and Peacekeeping Operations. This framework was to be expanded as needed to include other UN departments, programs and specialized agencies, including the planning and implementation of field operations. UNEP has not been involved in this process. Such participation would be a logical step in involving UNEP in such a way that it could play its mandated role as regards peacekeeping. The role given UNEP in the Needs Assessment Mission to Kosovo is an important step in this direction.

What might create such future arrangements?

An inter-agency task force could be established, under the formal co-chairmanship of the Under-Secretary General for Peacekeeping Operations and the Executive Director of UNEP, to examine issues related to peacekeeping and environmental security. This group might evaluate such matters as:

- Environmental concerns, considerations and practices in past UN peacekeeping operations
- Current practices and policies related to environmental matters and the military of selected states
- The role of the military in peacekeeping operations in dealing with potential and actual threats to environmental security
- Methods for ensuring the incorporation of environmental security goals and responsibilities into peacekeeping strategies and instruments (SOFAs & SOMAs)
- Potential costs involved in dealing with conflicts which may arise between a) appropriate environmental security concerns and responsibilities and b) mandates of military operations
- Thoughts and experiences of those in the UN who have dealt with peacekeeping in the evolving effort to define the concept of environmental security

In addition to closer cooperation between peacekeeping operations and UNEP, constant attention should be given to improving coordination in all of the above areas among other parts of the UN system such as FAO, World Food Program, WHO, and UNDP. Special attention might also be

given to UNHCR's participation in pre-military action planning, since UNHCR is often given post-military management responsibilities.

Another step in the development of United Nations environmental security policies or doctrines would be the creation of a handbook of guidelines and rules for in-theater environmental security. Some interviewees for this study suggested that the Department of Peacekeeping Operations could prepare and issue guidelines for such a handbook. It would provide in-theater, on the ground instructions and rules for military and support personnel on practices to promote environmental security in UN peacekeeping operations.

Most likely, the work would build upon the environmental security guidelines published by the International Committee of the Red Cross. In addition to a UN task force and the Red Cross, other NGOs might be included in its development such as the International Peace Academy and the proposed Green Cross, originally conceived for environmental rescue from impacts of war as the Red Cross is for human rescue.

Eventually, some kind of UN-authorized mechanism will have to be established to send teams to document environmental security threats within one country that would affect another country. Following the findings of such teams, additional mechanisms will have to be established to act on the findings. One such mechanism was suggested in 1997 by U.S. Ambassador John McDonald, Executive Director of the Institute for Multi-Track Diplomacy. Ambassador McDonald recommended the establishment of a UN Environmental Mediation Program to train environmental mediators, establish national environmental mediation centers, assist national research programs, and create an international panel of environmental mediators to be on call to help resolve transboundary disputes (see Appendix C).

The question: "*When are environmental threats to the global community so serious that international intervention is justified?*" will be answered differently at different times. How it is answered will determine the shape of future arrangements. The debate over the balance between national sovereignty and international values will be carried out in many forums, but answered in the UN Security Council, where all decisions will be subject to the veto of the five permanent members.

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

The roles to be played by the United Nations and other international organizations in dealing with environmental security are emerging. The UN has several potential roles:

- Addressing environmental “causes”/“components” of crises and wars
- Helping to prevent environmental pressures that could trigger armed conflict
- Addressing environmental “effects” of war, however caused
- Helping to establish rules of engagement vis-a-vis the environment
- Amending the existing conventions, elaborating new ones to handle emerging environmental security issues, and monitoring environmental security issues in existing conventions
- Identifying and holding the responsible parties liable
- International research and study of these roles
- Forecasting and monitoring environmental emergencies
- Providing/initiating/coordinating as needed international relief operations in environmental emergencies, especially those of transboundary or regional significance

Although there is currently little UN attention given to the environmental effects and causes of conflict, this will change. All the interviewees expressed interest in this subject and acknowledged the need for further development of the UN, and related international organizations’, positions.

Several persons expressed interest in creating an environmental guide or handbook. Appropriate defense authorities should explore the possibility of having national missions to the United Nations recommend the development of such a guide.

Military forces should remain familiar with the existing international conventions and protocols and the non-military threats they address. This may require a library function built on the results shown in Volume II, by which the military force will have complete, immediate and ready reference to this information.

The scenario development approach has merit not only in forcing attention to potential environmental security situations, but also in analyzing the possible responses and responsibilities that may ensue. Scenarios can be particularly beneficial in anticipating the situations in which vacuums exist since these could escalate before effective action is implemented. The scope of this contract did not permit a more rigorous analysis, but a set of more mature environmental threat scenarios should be written portraying potential UN interventions and their plausible ramifications.

In addition, military forces should monitor the emerging responsibilities carefully, perhaps by establishing liaison with other organizations that have already been designated as responsible for certain situations.

Conceptual tools should be developed to facilitate this tracking process. The UN system and the concept of environmental security are complex. To assist communications among a range of relevant personnel, it would be helpful to reach agreement about a common conceptual framework or tool. Two initial conceptual tools are below.

The first tool below is a simple taxonomy for tracking the changing conditions of the UN’s role in environmental security:

Range of Potential UN Environmental Security Roles

Figure 5

<i>UN’s role in addressing environmental <u>effects</u> of conflict within a country or transborder</i>	<i>UN’s role in addressing environmental <u>causes</u> of conflict within a country or transborder</i>
<p>By UN force: How the law binds the UN forces and their action</p> <p>By non-UN force: what UN mandate might prevent or punish others’ illegal actions</p>	<p>Through intervention before the conflict</p> <p>Through intervention during the conflict</p> <p>Peacekeeping and/or other UN or related IOs after the conflict</p>

The second tool is offered by NATO. This classification system could also be used to track changing UN environmental security roles.²² This identifies four general types of environmental conflict:

- ethno-political conflicts
- migration conflicts (internal, cross-border and demographically caused migration)
- international resource conflicts
- environmental conflicts due to fundamental global environmental change

A combination of these two tools would be more robust.

²² NATO. 1999. *Environment & Security in an International Context*, Report No. 232, Bonn, Germany.

APPENDIX A — LIST OF PARTICIPANTS

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APPENDIX B — A CURRENT EXAMPLE OF THE UN’S ROLE EVOLVED IN ENVIRONMENTAL SECURITY: NATO’S BOMBING CAMPAIGN IN YUGOSLAVIA

May 10, 1999 (Environmental News Service (ENS)) – Although not on the agenda as European Union environment ministers gathered in Weimar for their informal meeting this weekend, the Kosovo conflict topped the bill in German environment minister Joergen Trittin’s post-meeting press conference. Several delegations, and especially Greece, had expressed concern over the environmental implications of NATO’s bombing campaign. The ministers “felt that we should take precautions so that all damage can be put right again as soon as possible,” said Trittin. “We are sure that environmental damage will not be limited to the territory of Yugoslavia,” he went on, but would also affect the Danube and the Black Sea. The minister stressed that making any statement about the environmental implications of the war was hampered by a severe lack of hard information. Scientists and environmental groups across the Balkans and the Swiss-based Worldwide Fund for Nature have expressed deep concern over the ecological effects of the NATO bombing.

June 4, 1999 (ENS) – The Romanian government is trying to calm public apprehension over the spread of *toxic substances* due to NATO bombing strikes on bordering Yugoslavia. There is growing public concern over possible pollution due to NATO strikes on industrial Yugoslav manufacturing plants, such as the April 15 destruction of the Pancevo petrochemical plant near Belgrade, and the Prahovo oil terminal which was hit on May 15. The Ministry of Waters, Forests and Environmental Protection (MWFEP) report says the main environmental problems caused by the Yugoslav war are heavy metal concentrations in the Danube River water, and acid rains in Romania’s southwestern counties Timis and Caras-Severin.

Routine and special water analyses have indicated concentrations over the maximum permitted levels of heavy metals such as copper, chrome, cadmium, lead and zinc in several Danube River areas, such as the Portile de Fier Romanian-Yugoslav dam. A peak level of 55 times the maximum admitted level of zinc was determined on April 23. Phenol concentrations over the maximum admitted level have also been determined. While no fish mortality has yet been reported, environmental damage due to the persistence of heavy metals and other pollutants may occur in the future, says the report. No radioactive pollution has been reported, despite a series of dramatic alarm signals received from Yugoslav and international sources regarding the use of depleted uranium missiles by NATO. According to Petrica Sandru, vice-president of the Romanian Society for Radioprotection, the “only serious danger of radioactive pollution could come from an accidental bombing of the Bulgarian nuclear power plant of Kozloduy,” south of the Romanian border. The Bulgarian capital, Sofia, has been already hit accidentally by NATO missiles. The Romanian MWFEP has made consistent efforts from the beginning of the NATO strikes on Yugoslavia to monitor the environment. According to Romica Tomescu, minister of MWFEP, “this effort already cost the Romanian authorities over US\$500,000.” Monitoring equipment from several Environmental Protection Agencies, laboratories, and petrochemical plants has been displaced to areas bordering Yugoslavia. The MWFEP has decided to stop paying its dues to several international conventions, hoping to save money in this way, and use it for the monitoring program.

Philip Weller, Director of the Danube-Carpathian Program of WWF International says stopping payment of dues is a “bad signal about Romania’s commitment to support international conventions.” The request could be interpreted as an attempt on Romania’s part to “use the situation to obtain advantages,” he warns.

While agreeing that some pollutants, such as mercury, cannot be monitored with existing equipment, Weller thinks that a more realistic figure for the most urgent equipment needs would be US\$200,000. WWF has already identified ways to finance the Romanian monitoring program, through grants from the United Nations Environment Program and the Austrian government.

The WWF called last month for an international environmental protection and recovery plan for the Balkans. The plan could be implemented under the Danube River Protection Convention, and would “support existing civil defense preparations for spill detection and clean-up capacities in Bulgaria and Romania.”

June 9, 1999 (ENS) – Anxiety has been widespread amongst scientists, environmentalists and the general public over the possibility of a major radioactive release if a bomb strikes the Vinca Institute. The Vinca reactor has not been in operation for more than 15 years, but a significant amount of enriched 235-uranium and unused fuel is still in a spent fuel pool in the reactor’s interior. Highly radioactive material for “everyday activities” is also located in several research laboratories, according to P.R. Adzic at the Vinca Institute. Now it appears that an agreement is concluded for Serb troop withdrawal from Kosovo that could suspend the bombing. If so, the threat of a Vinca hit would be lifted. Everyone in Belgrade and the entire Balkan region is relieved that so far, NATO bombs have not struck Vinca. Two major problems have been identified during the IAEA fact-finding missions. The first problem involves a large fraction of the spent fuel sealed in drums that may be over-pressurized by the evolution of corrosion gases. This problem requires “immediate attention” the IAEA said in a February 1997 publication. The second problem involves the remainder of the fuel, some of it already leaking, in corroding stainless steel tubes. This problem “should be mitigated as soon as possible,” the IAEA said.

July 13, 1999 (ENS) – Environmental devastation in the Balkans in the wake of the 77 day NATO bombing of Yugoslavia that ended June 10 is now being addressed in a practical manner by a newly formed task force made up of United Nations agency personnel. The new task force will leave for Belgrade on July 18. The Balkans Task Force on Environment and Human Settlements is made up of staff members from the UN Environment Program (UNEP) and the UN Center for Human Settlements, commonly known as Habitat. The Joint UNEP/OCHA Environment Unit, UNEP’s Chemicals Program and the Regional Office for Europe are also involved. OCHA is the UN’s Office for the Coordination of Humanitarian Affairs.

The Balkans Task Force was established on May 5 by Dr. Klaus Toepfer, UNEP’s executive director, in order to monitor the environmental and human settlements impacts of the ongoing Balkans conflict. It was agreed that UNEP be involved in the areas of the establishment of an “environmental administration” in the framework of general civil administration and environmental education and training, said Haavisto. An earlier United Nations inter-agency mission to the region recommended that UNEP, together with Habitat and UN Development

Program carry out a detailed assessment of the environmental situation with the aim of identifying specific needs for targeted assistance.

This recommendation was echoed by European Union Environment Ministers at the Council meeting on the Environment in Luxembourg June 23 and 24. Welcoming the efforts of UNEP/Habitat, the ministers said it is now necessary to immediately start obtaining reliable and verifiable information for assessing the type and extent of environmental consequences of the conflict. Addressing the environmental damage and preventing further damage is an integral part of the reconstruction efforts, the EU Council stressed.



Figure 6

July 23, 1999 (ENS) – It could take ten years and billions of dollars worth of aid to restore the war-torn Balkan region, international leaders estimate. James Wolfensohn [President of the World Bank] said, “We have a responsibility to help them, especially the children, to mend their broken lives.” In Tirana, Albania July 19, Wolfensohn and Prime Minister Pandeli Majko signed legal agreements for the financing of three projects including a US\$24 million irrigation and drainage project.

UN Secretary-General Kofi Annan said in a speech to the Organisation for Security and Cooperation in Europe July 20, that failure by the international community to help restore water supplies and other essential services in the Federal Republic of Yugoslavia now could result in an exodus of Serbs. He predicted that it will take at least 10 years to complete reconstruction under the so-called new Marshall Plan, or stability pact, for the Balkans.

A mission of the Austrian Federal Environment Agency led by UNEP/INFOTERRA National Focal Point representative Johannes Mayer was in Sofia from July 12 to 20 to check at a more informal expert level data on the environmental impact of the conflict. Their preliminary conclusions on air pollution reflected data from the air pollution modeling working group of

National Institute of Meteorology and Hydrology of the Bulgarian Academy of Sciences. The measurements of polluting substances in the air such as hydrogen sulfide, ammonia, methane and phenol in the border area and around Sofia and from Romania along the Danube River during this period “remain within the usual variations of industrial air pollution with domestic and transboundary origin,” the Bulgarian scientists report.

On land, the Austrian mission reported in their preliminary conclusions that during the period of military activities, no acute damages to the living environment on the Danube river were established, but in some cases heavy metals were detected in vegetation and fish. “Systematic monitoring should continue, especially since it can be supposed that considerable and mainly unknown chemical pollution is being held back still for some time by the barrages of the Iron Gate area,” the Austrians reported.

On the Danube River, the Austrian mission reported that starting from unusual large oil spills on the Danube in January 1999, the Bulgarian authorities had begun well before the start of the military activities to build up a national emergency system for fast detection, analysis and data transmission in case of emergency pollution situations. “During the period of the military activities, the increased activities for monitoring the water quality along the Bulgarian stretch of the Danube river have not shown unusual increases or exceedances of current norms for the measured basic parameters,” the Austrian report stated.

British and French forces continue to ensure the collection of solid waste in Pristina and Mitrovica respectively, but there continue to be a number of other towns whose needs are not being addressed.

July 23, 1999 BBC News – Published at 16:53 GMT 17:53 UK

The experts are working for the Balkans Task Force (BTF), a joint initiative of the UN Environment Programme (UNEP) and the UN Center for Human Settlements (Habitat). The task force is chaired by a former environment minister of Finland, Pekka Haavisto, who has said the aim is to produce “a neutral and scientifically credible report on the situation”. International experts invited by the United Nations to assess the environmental damage caused by the Balkan war have arrived in the northern Serbian city of Novi Sad. The team has already visited the Pancevo industrial complex, 15 km from Belgrade, which was heavily bombed. The town contains an oil refinery, a fertilizer factory and a chemical plant. A raid in April hit storage tanks which released large amounts of vinyl chloride monomers (VCMs) into the air.

July 29, 1999 (ENS) – A United Nations Environment Program (UNEP) task force has failed to find major environmental damage from NATO’s bombing of Yugoslavia after a 10-day preliminary analysis of industrial sites. Balkans Task Force leader Pekka Haavisto, a former Finnish environment minister, said on Tuesday that there is “no major eco-catastrophe,” though local problems are severe in some areas.

Haavisto gave a similar assessment of the war’s environmental impacts when he briefed European Union environment ministers on the issue at last week’s informal meeting hosted by the Finnish presidency. One of the biggest obstacles faced by the task force is the poor knowledge of pre-existing pollution around sites such as the Pancevo industrial complex near Belgrade, Haavisto said. Trying to determine between old and new pollution was a “highly political issue,” he

concluded, although he stressed that the group had received full cooperation from all parties involved.

The Balkans Task Force assessment is considerably less pessimistic than one released June 28 by the Hungary based NGO the Regional Environmental Center for Central and Eastern Europe (REC). The REC report concludes the war in Yugoslavia “may have far-reaching impacts on the ability of the Balkan countries to protect the valuable environment of the South Eastern European region, and only a long-term approach to reclamation, monitoring and institutional rebuilding will help prevent a potentially disastrous situation.”

Among the more pressing environmental problems, the REC report listed:

- Extensive damage to the waters in Yugoslavia, affecting agriculture and fishing
- An interrupted planting season in Yugoslavia and border regions, which means a poor harvest
- Damage to the electrical power infrastructure of Yugoslavia leading to heating shortages this winter
- Damage to the water and waste-water systems in Albania and Macedonia
- Air and water pollution, including potentially hazardous pollution from depleted uranium weapons, which will have as-yet-unknown impacts on the water table and the food chain of the region.

The REC report pointed to some of the lesser known problems such as severe strains on fresh-water and sewage facilities in Macedonia and Albania, due to the need to construct large refugee camps with little time for prior planning. “Some refugee camps in those countries did harm to protected areas, and several endangered species in Yugoslavia and the surrounding countries had their fragile environments threatened - either by bombing or refugee movements,” REC reported.

August 18 – © *Earth Times News Service* A UN task force has found traces of mercury, asbestos and other toxic and hazardous substances in the soil and water of sections of Yugoslavia that were targeted by NATO bombers. Haavisto, former Environment Minister of Finland, said the findings of the task force are still being analyzed, with a complete report to be issued in September. Haavisto said the task force completed extensive sampling of the soil, air and ground water at the Pancevo industrial complex (fertilizer plant, petrochemical factory, and oil refinery), Novi-Sad oil refinery, the Zastava car factory in Kragujevac, Nis (transformer factory) and Bor (copper factory) in Serbia and fuel depots in Krajlevo and Prahava—all in Serbia—and Pristina, Kosovo.

When asked how it will take to clean up the pollutants, Haavisto said the cleanup would take a long time, especially with the on-site polluted soil and protection of the ground water. As for concerns about radiation from depleted-uranium shells fired by the NATO warplanes, Haavisto said the task force had not detected high levels of radioactivity, but that the World Health Organization (WHO) and International Atomic Energy Agency (IAEA) had been contacted.

An earlier survey, sponsored by the European Commission and carried out by the Regional Environmental Center for Central and Eastern Europe (REC), found that pollution is “very severe” in the vicinity of some industrial complexes bombed by NATO and that many valuable ecosystems

have been disturbed. The REC report, released at the end of June, said that water in the area has been contaminated with PCBs, spilled oil, ammonia and heavy metals, and the air shows signs of radioactive pollution. It also notes that lack of sewage treatment in Albanian refugee camps has led to discharges of sewage into water channels.

August 27 © (ENS) – This, the third Balkans Task Force mission to the region, is one part of an independent scientific and technical assessment of the environmental and human settlement impact of the Balkans conflict. The current mission is organized in cooperation with the Vienna-based International Commission on the Protection of the Danube River (ICPDR). Balkans Task Force scientists from the Czech Republic, Hungary, France, Germany, Romania, Russia, Slovakia and Sweden visited potential pollution “hot-spots” up and down stream of the Novi-Sad oil refinery, Pancevo industrial complex and a tributary near the Zastava car factory in Kragujevac. From July 18 to 27, a Balkans Task Force team of international experts visited the Former Republic of Yugoslavia to assess the environmental damage caused by the conflict at selected industrial sites.

A second Balkans Task Force team, based in the Kosovo capital of Pristina, is currently working in close cooperation with the UN Mission in Kosovo (UNMIK) on issues of urban management and rehabilitation, housing law, property registration and environmental management. A fourth Balkans Task Force mission will begin work next month on an assessment of impacts on the region’s biological diversity.

Finally, an inter-agency group involving UNEP, WHO, IAEA (the International Atomic Energy Agency) and the Swedish Radiation Institute began work on August 3 to look into the issue of depleted uranium. Depleted uranium anti-tank shells were used in the Kosovo conflict.

This group, working from Geneva under the Balkans Task Force umbrella, is collecting and collating information on depleted uranium from a variety of sources and a decision will be taken in earlier September on future Balkans Task Force activity in this area.

The Balkans Task Force was established by the head of UNEP and Habitat, UN Under-Secretary-General, Klaus Toepfer, in May 1999 to assess the environmental and human settlements impacts of the Balkans conflict.

Sept. 13 – © 1999 *Associated Press*. U.N.: No Yugoslav eco-catastrophe. Instead, action urged for several “hotspots” left by NATO. The 78-day NATO bombing of Yugoslavia left the country with environmental “hotspots” but no ecological catastrophes, a United Nations team of experts concluded Monday. Urgent action is needed to deal with pollution at certain locations, said the team’s chief, Pekka Haavisto. The team announced some of its findings after completing its third and final investigative mission on the effects of the alliance’s air strikes here. “The towns of Pancevo and Kragujevac are two hotspots of particular concern,” Haavisto told reporters. Both towns were repeatedly pounded by NATO. Pancevo’s petrochemical plant and oil refinery were leveled in the process, as were the industrial complex and factories in Kragujevac, in central Serbia. Also urgently in need of cleaning is a one-mile stretch of a heavily polluted canal that feeds into the Danube River, Haavisto said. Water and sediment there have become heavily polluted with mercury, dioxin and petrochemical waste. “If the Danube level significantly rises in the fall, the waters will flow with all these pollutants into the river,” Haavisto said.

The experts also looked into rumors that NATO had used bombs containing uranium, a radioactive agent. Samples from the targeted locations are now undergoing laboratory analysis. The team did not disclose estimates on the environmental damage's economic impact. But Haavisto said any cleanup actions would be extremely costly. The team's preliminary findings will be submitted to U.N. Secretary General Kofi Annan in early October.

Sept. 14, 1999 *BBC News* Published on the Internet at 15:24 GMT 16:24 UK – Danube pollution warning. The World Wide Fund for Nature says drinking water supplies in parts of Yugoslavia and neighboring countries are at risk in the aftermath of the Balkan war. WWF sent a six-strong team to Yugoslavia for three days at the end of July. It concentrated on the Pancevo chemical complex near Belgrade, and on the Novi Sad oil refinery. Installations at Pancevo include a fertilizer plant, a vinyl chloride manufacturing plant, and an oil refinery. WWF said its team found “an enormous deficiency in the monitoring of toxic chemicals in the countries of central and Eastern Europe. The pollution monitoring program for the Danube has been particularly weak”. It said this made it difficult to distinguish contamination caused by the war from previous or continuing pollution. Pollution spreading. “However, it’s clear that the immediate clean-up and stopping of the current pollution coming from Pancevo and Novi Sad are vital.” The WWF team found evidence that toxic pollutants released close to places hit by the NATO bombing were now spreading into surrounding areas. Pancevo burns after a raid. It concluded that there was considerable atmospheric pollution, probably affecting the environment and public health. Soil and water samples it took “showed the presence of notable quantities of mercury, polycyclic aromatic hydrocarbons (PAHs), ethylene dichloride (EDC), and other highly toxic substances, including dioxins”. WWF says the contaminants are now “threatening groundwater drinking supplies and natural resources in several countries of the area”. Mercury accumulates in the food chain, and can be carried long distances in air and water. WWF says the mercury in soil samples taken at Pancevo was 2.5 times above the level that would trigger action if found in a country like the Netherlands. Exceeding safety levels. The U.S. Environmental Protection Agency says PAHs are highly carcinogenic. WWF found water in a canal at Pancevo containing PAHs 15 times above the EPA limit for drinking water. Soil samples from Pancevo contained PAHs 10 to 11 times higher than Dutch action levels, while at Novi Sad they were twice as high. EDC is a highly persistent and toxic pollutant which can affect the human reproductive, nervous and immune systems. Still too early to find all the answers. WWF says hydrocarbons, which it found in soil at Pancevo to amount to more than 25% of soil content, are also a problem. “One drop of oil is sufficient to contaminate one cubic meter of drinking water, making it undrinkable.” Pekka Haavisto, the chairman of the United Nations Balkan Task Force, said UN experts had found environmental “hot-spots” at Pancevo and Kragujevac, an industrial town in central Serbia. Disaster not likely. He said both needed urgent action, and there was a possibility that rising water levels could push mercury, dioxins and petrochemical waste in the canal there into the Danube. But he played down talk of an ecological catastrophe. “We didn’t find any alarming things in regards to the water-taking issues.” Mr Haavisto said the war’s long-term impact on the region’s biodiversity was likely to be “minimal”, adding that he was more concerned about the presence in national parks of unexploded weapons. The UN is still investigating the possible consequences of the use of depleted uranium weapons in the war, testing “soil and material samples” it had taken. But there was no word of its possible effects on people. “We have not been able to do that kind of work at all.”

October 14, 1999 *BBC* Balkans environment ‘seriously damaged’ – A United Nations task force which has been investigating the aftermath of the Balkan war says it found four environmental hot spots in Serbia. But the task force, a joint operation by the UN’s Environment Programme and its Centre for Human Settlements (Habitat), says the conflict did not cause an environmental catastrophe for the whole Balkan region.

The report of the Balkan Task Force (BTF) says the pollution found at the four hot spots is serious enough to pose “a threat to human health.” However, it says much of the pollution dates from before the war, and it found “widespread evidence of long-term deficiencies in the treatment of hazardous waste.”

The task force concentrated its work on five areas:

- industrial sites
- the river Danube
- biodiversity in protected areas
- human settlements
- the use in the war of depleted uranium (DU) weapons.

The report says there is no evidence of an ecological disaster for the Danube, though the task force did find “significant chronic pollution.”

APPENDIX C — UNITED NATIONS ENVIRONMENTAL MEDIATION PROGRAM (UNEMP)

US Ambassador John McDonald has recommended the following change to the UN Charter in order to enforce the UN legal framework and rights concerning the environmental issues and its implication for human and national security.

- “1. A United Nations environmental Mediation Program (UNEMP) will be established and will become a part of and be managed by the United Nations Development Program.
2. UNEMP will be responsive to Member States’ requests for technical assistance in the areas of training, institution building and research.
 - A. Training – UNEMP will provide skilled environmental mediators and trainers to teach environmental mediation skills to interested individuals and groups, in an effort to reduce conflict and misunderstanding in this field and to help implement the programs contained in Agenda 21.
 - B. Institution Building – UNEMP will assist interested governments in establishing National Environmental Mediation Centers, staffed by their own citizens, who will be responsible for future training and the non-violent resolution of environmental disputes within national borders.
 - C. Research – UNEMP will provide assistance in starting national research programs designed to identify existing conflict resolution or mediation practices currently being followed in the Member State, and helping to adapt those procedures to handle environmental problems that may require different approaches for the non-violent resolution of the conflict.
3. UNEMP will establish a panel of international experts who are highly skilled and widely respected environmental mediators, to be known as the, “ International Panel of Environmental Mediators”, who will be on call to assist Member States in helping to resolve major internal environmental disputes or cross-border environmental disagreements, when both Member states have requested assistance.”

Ambassador John W. McDonald

APPENDIX D — WEB SITES WITH USEFUL INFORMATION RELATED TO ENVIRONMENTAL SECURITY AND INTERNATIONAL TREATIES, CONVENTIONS AND PROTOCOLS

- <http://www.un.org/Depts/Treaty>
United Nations gives an overall view of international law and provides access to mostly U.S depository conventions and treaties. You can also do a search.
- <http://www.unep.org/unep/connection/sec.htm>
United Nations Environmental Program gives a framework of Environmental Legal Instruments in the international arena. It is also possible to search for a particular convention relating to UNEP.
- <http://www.ciesin.org/>
Center for International Earth Science Information Network, specialized in global and regional network development, science data management, decision support, and training, provides information that would help decision makers, scientists and the public better understand their changing world.
- <http://sedac.ciesin.org/pidb/>
Environmental Treaties and Resource Indicators (ENTRI); data access service provided by the Consortium for International Earth Science Information Network (CIESIN), which operates the Socioeconomic Data and Applications Center (SEDAC) for the U.S. National Aeronautics and Space Administration (NASA).
- <http://www.unfoundation.org>
UN WIRE, sponsored by the United Nations Foundation and its sister organization, the Better World Fund, which are dedicated to supporting United Nations efforts on behalf of the environment, population stabilization and children's health; gives daily updates on these issues.
- <http://www.ECOLAX.org/index.htm>
ECOLAX – a joint project of the UNEP and the World Conservation Union – provides access to information on more than 480 international environmental treaties and conventions. The user has easy access to information from the IUCN Environmental Law Information System (ELIS), together with links to the corresponding full text of selected treaties held by UNEP within their Computerized Environmental Law Information Base (CELIB). It is possible to locate Multilateral Treaties in a number of ways, such as date or place of adoption, keywords and subject.
- <http://ecsp.si.edu>
Environmental Change and Security Project, a project of the Woodrow Wilson International Center for Scholars, deals with the implications of the environmental issues on the national and human security.
- <http://www.gechs.org>
GECHS is a core project of the International Human Dimensions Program on Global Environmental Change (IHDP). Its main goal is to advance interdisciplinary, international research and policy efforts in the area of human security and environmental change.

- <http://www.ctct.rnd.doe.gov/ctbt>
U.S. Department of Energy – site on Comprehensive Nuclear-Test-Ban Treaty Research and development.
- <http://www.imo.org/imo/convent/index.htm>
International Marine Organizations offers access to full texts of international conventions concerning the marine environment.
- <http://www.biodiv.org>
The Secretariat to the Convention’s “Clearinghouse Mechanism” offers links to background documents, national and thematic focal points, and current initiatives related to biodiversity.
- <http://www.eli.org>
Environmental Law Institute – a not-for-profit organization in Washington DC that offers links to various NGOs, IOs, and law libraries that concern both domestic and international environmental issues and laws. It also gives updates on publications relating to environment and law.
- <http://www.lawschool.cornell.edu/lawlibrary/default.html>
Cornell University Law Library gives access to full documents of international law.
- <http://www.asil.org/resource/env1.htm>
ASIL (American Society of International Law) – Guide to Electronic Resources for International Law – also has user-friendly searchable Web page on international law.
- <http://www.acda.gov/initial.html>
ACDA (U.S. Army controls and Disarmament Agency) offers a list of major military-related international conventions and their full texts.
- <http://www.tufts.edu/fletcher/multilateral.html>
Multilaterals Project by Fletcher School of Law and Diplomacy at Tufts University provides access to the texts of multilateral conventions and other instruments.
- <http://environment.harvard.edu>
International Environmental Policy Reference Guide, by Harvard University’s environmental education, research, and outreach enterprise.
- <http://207.107.99.12:8080/phantom.acgi>
Biodiversity Related Conventions.
- <http://www.cnie.org/nle/crsnew.html>
The online **National Library for the Environment** includes objective reports produced as briefing documents for the Congress on contemporary issues.
- <http://www.nato.int/docu/facts/env.html>
NATO’s activity, Committees, documents and events related to environmental issues and their implications in national and human security.