

**STRATEGY
RESEARCH
PROJECT**

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**ENVIRONMENTAL SECURITY AND THE
IMPERATIVE OF ENGAGEMENT**

BY

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USAWC STRATEGY RESEARCH PROJECT

Environmental Security and the Imperative of Engagement

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ABSTRACT

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Throughout most of our nation's history, the variables defining national security have been predominately military in nature. Security consisted of the physical defense of the nation, its people and possessions. There has been increasing realization that factors outside the traditional sphere of military operations have profound effects on the security of the United States. It is within this context that environmental issues have risen to prominence, and the term "Environmental Security" has entered the vocabulary of security planners, policy makers and environmentalists. While the term has come into common usage, there is little agreement as to its definition.

With the conclusion of the "Cold War," traditional concepts of the nature of national security and the methods to achieve it have changed. United States national security planning shifted from a strategy of military containment (of the Soviet Union) to an imperative of (world-wide) engagement employing all the sources of national power. Current National Security Strategy requires the synchronized efforts of the entire government to shape the international environment in support U.S. interests.

This paper examines the concept of environmental security and how it is integrated into the international engagement strategies of the agencies of the United States government.

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ENVIRONMENTAL SECURITY AND THE IMPERATIVE OF ENGAGEMENT

Throughout most of our nation's history, the variables defining national security have been predominately military in nature. Security consisted of the physical defense of the nation, its people and possessions. With the conclusion of the "Cold War," the traditional concepts of the nature of national security have changed. There is an increased realization that factors outside the traditional sphere of military operations can have profound effects on the security of the United States. It is within this context that environmental issues have risen to prominence in discussions related to national security. These issues have been loosely described as "Environmental Security." While there is little agreement as to exactly what is meant by the term, there is general agreement that environmental issues are relevant to U.S. security interests.

Just as the concept of National Security has been expanding from one of physical defense to one of promoting national interests, the strategy to accomplish this has changed from one of containment of our adversaries to one focused on "engaging" all nations. The strategy anticipates that engagement activities will benefit the interests of both the U.S. and countries engaged. It also envisions that the relationships established as a result of these engagement activities will serve to promote stability between nations.

The diverse perspectives of the nature of Environmental Security has given the subject broad appeal to nations which may have few other common interests. This shared concern for environmental issues can form the basis of U.S. engagement strategies that take advantage of the capabilities of multiple agencies. This paper examines the notion of Environmental Security and its relationship to the engagement strategies of several agencies of the U.S. government.

US SECURITY PLANNING

THE SECURITY ENVIRONMENT FOR A NEW CENTURY

In his preface to the 1999 version of the National Security Strategy, President Clinton offers his vision of how the nation will ensure its security in the next century.

America is at the height of its influence and prosperity. But, at a time of rapid globalization, when events halfway around the earth can profoundly affect our safety and prosperity, America must lead in the world to protect our people at home and our way of life. Americans benefit when nations come together to deter aggression and terrorism, to resolve conflicts, to prevent the spread of dangerous weapons, to promote democracy and human rights, to open markets and create financial stability, to raise living standards, to protect the environment – to face challenges that no nation can meet alone. ... Our nation's central challenge – and our responsibility – is to sustain that role by seizing the opportunities of this new global era for the benefit of our own people and people around the world.¹

In this brief introduction, the President describes the operating environment that will drive the execution to the nation's security strategy. The first aspect of that environment is the observation that the phenomenon of globalization is dramatically changing the nature of our security environment. Globalization refers to the process of accelerating economic, technological, cultural and political integration of the peoples of the world.² Events beyond our borders are increasingly affecting our nation's interests. Problems that once seemed quite distant - such as resource depletion, rapid population growth, environmental damage, new infectious diseases and uncontrolled refugee migration – can have important implications for American security.

The second aspect is the necessity for the United States to provide leadership in shaping this increasingly integrated global environment. As the world's only "superpower," other nations look to the United States to assume an active leadership role in world affairs. We must demonstrate the will and capabilities to exert global leadership and remain the preferred security partner for the community of states that share our interests.³

A STRATEGY OF ENGAGEMENT

Our National Security Strategy recognizes that the variables that affect our interests are constantly changing. We will seek to influence these changes in the strategic environment in our favor by being actively involved in the processes that will control the character of change. These shaping processes are collectively referred to as "engagement." Engagement strategies can offer early resolution to developments that, if left unattended, could adversely affect national interests. By synchronizing "military, diplomatic, intelligence and other efforts"⁴ in support of consistent engagement strategies, effectiveness can be maximized at a minimum cost.

While specific engagement strategies vary widely, they can be grouped into three main functions. The first function is to build relationships. Strategies that foster personal relationships between individuals who influence the actions of nations can not only build trust and confidence, but also can offer future opportunities for communications during times of crisis. The second function is to create a cooperative environment in which to further our national interests. Activities in support of this function are generally intended to assist other nations in the promotion of political stability, economic growth, and respect for human rights. The third function is to demonstrate the capability and will of the United States to take actions in support of its national interests. The military capabilities of the United States will be without peer for the next decade. Demonstration of this capability will instill confidence in our allies and deter activities by rogue states or terrorist organizations.⁵

In the post-Cold War era, engagement strategies have become the principal method for implementing U.S. security objectives. They are generally a low cost investment and provide value not only to the United States, but to the countries or regions engaged. Issues related to the environment

provide some unique vehicles for engagement in areas that include not only military, but economic and political interests of the nation.

WHAT IS ENVIRONMENTAL SECURITY?

On April 22, 1970, the United States celebrated the first "Earth Day." This event crystallized for many people the importance of the relationship between man and the environment. As a nation, we were coming to recognize that there was a limit to the abundance of nature and that we could no longer pursue national objectives without considering their impact upon the environment. Over the next twenty years the nation enacted a series of laws that mandated the clean-up of existing hazardous and toxic waste disposal sites, and strict regulation of activities which could adversely affect the water air and wildlife.

By the 1990's, environmental issues occupied a prominent place in American domestic politics. At the same time, the security concepts that had formed the lines of demarcation in the bi-polar world of the Cold War were giving way to new interpretations of national security. Resource scarcity, environmental degradation, and the impact of differential environmental endowment began to be described by terms traditionally reserved to the military context. The environment came to be seen as a new strategic resource and environmental degradation as a "non-military" threat to peace and stability.⁶ The term "Environmental Security" entered the lexicon of both the environmental and security communities.

The term itself has been viewed by many as an oxymoron. Environmentalists viewed the actions of the military as a principal threat to the environment, while the military saw the restrictions imposed by environmental regulations as obstacles to military readiness. There was (and is) no consensus as to the meaning of the term. Did environmental security mean security of the environment, or security of individuals from environmentally related hazards, or security of the state itself? Were all environmental issues security issues?

Environmental Security discussions have evolved into five general categories

- The impact of war on the environment
- The impact of preparing for war on the environment
- Conflict over control of strategic resources
- The impact of scarcity on regional stability
- The security of the environment itself

THE IMPACT OF WAR ON THE ENVIRONMENT

Conventional warfare has always had the capability to adversely affect the environment. The tools available for modern warfare have expanded the potential for environmental degradation on increasingly grander scales. This interpretation of Environmental Security is concerned with the prevention of damage to the environment in the conduct of war.

Two modern examples intentional environmental damage are the U.S. military's use of defoliation practices in Vietnam and the Iraqi military's use of oil as an obstacle to the mobility of opposing forces during the Persian Gulf War.

During the war in Vietnam (1961 to 1975), the U.S. military's repeated application of herbicides, massive bombing and extensive use of tractors destroyed large areas of vegetation in contested areas of the region. The objective of these actions was the removal of the concealment the vegetation afforded the enemy and the destruction of his food supplies. These actions also led to a reduction of the area's wildlife, to soil erosion and to disturbances of the nutrient balance in the ecosystem that have been taking decades to recover.⁷

During the Persian Gulf War in 1991, Iraq ruptured and set fire to over 700 Kuwaiti oil wells and released huge amounts of oil into the water off the coast of Kuwait. Although never stated, it is presumed that the Iraqis hoped that the smoke from the fires would reduce the visibility enjoyed by coalition aircraft, and that the oil in the Gulf would hinder an expected amphibious landing in Kuwait. These activities had little direct effect on the military operations, but they did produce significant damage to the marine ecosystem and released immense amounts of dense soot and poisonous fumes into the atmosphere.⁸

While the effects of intentional assaults on the environment can be serious, the unintentional consequences of warfare on the ecosystem may be even more significant. Assaults on "legitimate" military targets often have unanticipated secondary effects. In its 1999 war with Yugoslavia, NATO bombers targeted facilities that supported the Yugoslav government's ability to conduct operations in Kosovo. In the process, they disabled sewage treatment plants and destroyed refineries, and chemical plants which released harmful chemicals into the air, soil and water.⁹

In 1986, an accident at the Soviet nuclear power plant in Chernobyl demonstrated how a release of nuclear material could seriously contaminate huge areas. Although the Chernobyl accident was not related to war, nuclear reactors in Iraq have been attacked on three different occasions (1980, 1981, 1991). These attacks are not known to have released any radioactive materials into the environment, but they demonstrate the high probability that combatants would target nuclear facilities. There are 195 clusters of civilian nuclear power plants in 31 countries. The possibility that they would be targeted in a military operation opens the potential for Chernobyl-like consequences.¹⁰

The methods employed by nations in the in the conduct of war are generally constrained by cultural acceptability and international conventions. At least eleven international agreements seek to restrict damage to the environment as a consequence of war.¹¹ The enforcement mechanisms for these agreements, as well as the non-participation by many nations, have made them of questionable value in their ability to prevent environmental damage. However, as nations adopt a greater appreciation for the consequences of military strategies that damage the environment, it is likely that their own people (and the international community) will force compliance.¹²

THE IMPACT OF PREPARING FOR WAR ON THE ENVIRONMENT

The maturity of the environmental movement in the United States (and throughout the world) has led to concentrated efforts to modify the activities of polluters, and to force them to clean-up damage for which they were responsible. Military activities ranging from the production of weapons systems to the operations of military bases have created significant environmental problems. This interpretation of Environmental Security is concerned with the remediation of sites contaminated by military activities and the prevention of future environmental pollution.

The U.S. Department of Defense (DoD) is responsible for environmental contamination resulting from decades of operations both in the United States and overseas. DoD has engaged in cleanup activities at about 1,800 military installations and at over 8,000 formerly-used defense sites. Ninety-four of DoD's stateside installations are listed on the Environmental Protection Agency's (EPA) Superfund National Priorities List of most contaminated sites.¹³

The cost to DoD for the cleanup of existing problems and compliance with current environmental regulations is averaging nearly \$5 billion each year.¹⁴ Primarily to cope with this staggering workload, DoD established an environmental security program.

The mission of DoD's Environmental Security program is to strengthen national security by integrating environmental safety, and occupational health considerations into U.S. defense and economic policies; to ensure responsible performance in defense operations; and to maintain quality installations to support a ready force. The premise for this program is that investing in preventive measures is the best way to protect health and the environment, to reduce the costs of complying with environmental laws, and to clean up past contamination, and liability associated with pollution. The major components of the Environmental Security program are cleanup, compliance, conservation and installations, pollution prevention, and technology.¹⁵

The militaries of many countries face similar environmentally related operational constraints and even greater responsibilities for the clean-up of military related pollution. The current situation in Russia offers one of the most striking examples. Environmental contamination from nuclear wastes at a single site in Russia (Tomsk-7) is 434 times greater than the total amount of nuclear waste in the United States. When this is combined with other sites, Russia's nuclear waste cleanup responsibilities are 658 times those of the United States.¹⁶

In many cases the magnitude of the problems present a significant health risk, not only to the country that created the problem, but to an entire region. The technologies necessary to remediate the sites are often prohibitively expensive for many nations. The United States military has developed new technologies and gained a great deal of expertise in the prevention and clean-up of military based environmental pollution.

CONFLICT TO GAIN CONTROL OF RESOURCES

Throughout history, nations have fought to gain secure access to adequate supplies of natural resources. Access to these resources is often seen as essential to a nation's security and economic well-

being and has been a common source of conflict. This interpretation of Environmental Security is concerned with the need of nations to maintain secure access to critical natural resources.

For modern society, oil has been the most critical natural resource. The Arab oil embargo of 1973-1974 was a rude awakening for Americans who depended on a cheap unlimited supply of oil. Though the embargo eventually ended, it demonstrated the vulnerability that dependence on a strategic resource, which is largely held by nations unsympathetic to the national interests of the United States, can have on the nation. In his 1980 State of the Union message, President Carter declared that "an attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force."¹⁷ Ten years later, the United States would lead an international coalition into war with Iraq to ensure unfettered access to the region's oil supplies.

Renewable resources such as fresh water, fish stocks, and productive agricultural land, present a different problem. While they are renewable, they are not infinite. They may be consumed at rates greater than nature's ability to renew them (e.g. water), or they may be drawn below a threshold where nature is incapable of renewal (e.g. fisheries). Increased rates of population growth and modern technology's capability to rapidly exploit these resources are placing strains on many of these systems beyond the ability of nature to renew them. These strains can contribute to the onset of conflict because these resources (1) are increasingly scarce in some regions, (2) are essential to human survival, and (3) can be physically seized or controlled.¹⁸

The renewable resource of greatest concern to strategic planners in many parts of the world is fresh water. In areas such as the Middle East and North Africa, the very survival of the state may depend on access to river systems that transit several nations. Egypt, for example, has declared that any nation's attempt to affect the Nile River to Egypt's detriment would elicit a military response¹⁹ and "an associative cause of the third Arab-Israeli war of 1967 (the Six Day War) was the struggle for the waters of the Jordan and other rivers in the area."²⁰

While conflicts over control of oil and strategic minerals have frequently been categorized as environmental security issues, they are principally economic issues. It is unlikely that any nation could control any of these resources to the extent that they would truly affect the survival of a state. Renewable resource issues are much more localized in their application. As nations' requirements exceed the availability of these resources, they are tempted to attempt to gain control those of their neighbors. Techniques to improve the management of these resources would be of increased value to affected nations and could form a foundation for engagement.

CONFLICT CAUSED BY RESOURCE SCARCITY

Within the next fifty years, the world's population is expected to exceed nine billion people. This represents a 50% increase. Most of this growth will occur in the regions of the world that are the least developed. Concurrently with this, the economies of the world are expected to quintuple. More people,

and the demand for increased quantities of goods and services will combine to place unprecedented demands on renewable resources. The scarcity of these resources will provide an added strain on the affected people. This strain will be one component in a complex interaction of social, economic, political and physical factors that may combine to destabilize a country or region. This interpretation of Environmental Security posits that the scarcity of renewable natural resources will be a significant stimulus in the creation of regional instability.

Scarcity of renewable resources may occur in three ways. First, people can reduce the quantity or degrade the quality of these resources faster than they are renewed.²¹ Resources most likely to be overused in this context are forests and productive agricultural land. The second source of scarcity is population growth. Over time for instance, a given flow of water might have to be divided among a greater number of people. The final cause is change in the distribution of a resource within a society. Such a shift can concentrate supply in the hands of a few, subjecting the rest to extreme scarcity.²²

These sources of scarcity may act individually or in combination with each other to create a situation where the environment gradually becomes incapable of supporting the people who have historically lived in a region. Resource scarcity can result in decreased agricultural production, economic decline, and disruption of social institutions. This may lead to local unrest and the migration of populations away from areas of degraded agricultural capacity and into contact with other groups of people, creating new potential for ethnically and culturally based civil strife. "For example, at the heart of the so-called Soccer War between Honduras and El Salvador in 1969 were Salvadoran refugees who had fled their native country because of intense competition for cultivatable land made scarce by severe environmental degradation, skewed distribution of agricultural land, and a growing population; Honduras sought to expel these refugees because they intensified the competitive pressures for farmland."²³

Environmental refugees and their potential effect on stability and conflict are expected to be of growing significance in the future. It has been estimated that there are as many as ten million "environmental refugees" in the world today, and that by the middle of the next century this category may exceed the number of refugees from all other sources by a factor of six.²⁴

In the developed world the likelihood that this situation would contribute to intrastate or interstate conflict is remote. "These states have relatively stable population levels and the economic and technological wherewithal to overcome most environmental problems that might lead to the sort of societal disturbance that could stimulate conflict."²⁵ Developing countries will be much more susceptible to effects of these scarcities of renewable resources. They lack the material, financial, and technological resources necessary to manage environmental problems, and their political and social institutions often hinder their ability to develop coordinated responses.

SECURITY OF THE ENVIRONMENTAL ITSELF

Many in the environmental movement believe that security of the environment in total should be the focus of Environmental Security activities. A group known as "Earth First" and their motto "no

compromise in the defense of Mother Earth" exemplifies those holding this viewpoint. Even those with a more traditional understanding of security issues have come to accept a more proactive role for the military in defense of the environment. In a speech on the Senate floor in 1990 Senator Sam Nunn stated:

"I am persuaded that there is also a new and different threat to our national security emerging—the destruction of our environment. The defense establishment has a clear stake in countering this growing threat. I believe that one of our key national security objectives must be to reverse the accelerating pace of environmental destruction around the globe."²⁶

While the regional and global nature of environmental problems such as greenhouse warming, stratospheric ozone depletion, and acid rainfall do serve as subjects of common concern, the developed and undeveloped regions have vastly different perspectives. Third World states are far more interested in economic and industrial development than in environmental protection and preservation. They view calls by the developed world for environmental protection as an effort to keep them permanently underdeveloped and deeply resent what they perceive as interference in their internal affairs.

Regional and global environmental problems are subjects of common concern. Assisting nations in their ability to respond to these problems could lead to improved cooperation and understanding.

ENVIRONMENTAL SECURITY AS A VEHICLE FOR ENGAGEMENT

As demonstrated in the preceding paragraphs, there is a wide disparity in the meaning of the term environmental security. At first blush, this may be seen as an impediment to developing strategies to engagement, however, this ambiguity can offer advantages. While the interested parties may lack a common definition, there is agreement that the environment is a key component of regional and national security and that the transnational nature of environmental issues can either threaten or promote U.S. regional interests. A recent inter-agency working group on environmental security and engagement made the following observation:

United States interests turn on regional stability. Environmental issues are now recognized as a major variable in regional instability and conflict, exacerbating tensions resulting from religious, ethnic, and other local differences such as socioeconomic disparities between rural and urban areas, rapid economic development, and border disputes. Countries will go to war over oil, water, fisheries, arable land, or uncontrolled migration. However, environmental issues may also promote regional confidence building measures, creating opportunities for communication and cooperation between regional states that might in all other ways be antagonists. They offer a viable new option for U.S. preventive diplomacy and CINC engagement strategies.²⁷

Effective engagement strategies involve the employment of all elements of national power. Engagement strategies targeting non-military security issues lend themselves to the participation by multiple agencies of the U.S. government. Several governmental agencies are actively pursuing international engagement activities related to environmental security.

STATE DEPARTMENT

The Department of State is the lead U.S. foreign affairs agency. There are 190 countries in the world; the United States maintains diplomatic relations with about 180 of them and maintains relations with many international organizations. It has more than 250 diplomatic and consular posts around the world, including embassies, consulates, and delegations and missions to international organizations.

The Department is placing "increased efforts on international environmental issues by forging international agreements to address global problems such as climate change, and to confront pollution and lack of resources in key areas where they dramatically increase tensions within and among nations, such as water in the Middle East or deforestation in Africa."²⁸

In a memorandum to his senior staff, then Secretary of State Warren Christopher emphasized "America's national interests are inextricably linked with the quality of the earth's environment." He instructed them to "do more to focus our environmental diplomacy and more effectively integrate it into our foreign policy through better bureau and mission planning, public diplomacy, and resource allocation. Environmental initiatives can be important, low-cost, high-impact tools in promoting our national security interests."²⁹ His "engagement strategy" required his staff to "make a concerted effort to integrate more fully environment and resource objectives into the planning and daily activities of bureaus and overseas mission." He instructed the "regional bureaus to identify how environment, population and resource issues affect key U.S. interests, and develop appropriate policies to protect scarce resources, promote investment in new technologies, or develop new political partnerships." In addition, he required them "to develop specific actions to implement this objective."³⁰

Regional Environmental Hubs

In an effort to address transboundary environmental issues, the Department has established twelve regional environmental "Hubs" in designated embassies around the world.³¹ Hub officers will engage with several countries of the region on a particular issue, with the aim of promoting regional environmental cooperation, sharing of environmental data, and adoption of environmentally sound policies that will benefit all countries in the region. These Hubs are intended to work closely with other U.S. government agencies to support their efforts by raising key issues at the diplomatic level. This, in turn should allow those agencies to be more effective in advancing US foreign policy interests.³²

USAID

The U.S Agency for International Development (USAID) implements America's foreign economic and humanitarian assistance programs. It "was created in 1961 with two purposes in mind: to respond to the threat of communism and to help poorer nations develop and progress. Both were legitimate strategic roles for the Agency; both were grounded in the belief that it was possible to defend our national interests while promoting our national values."³³

As the Agency examines its role today it notes "that the challenges we face constitute potential global threats to peace, stability, and the well-being of Americans and people throughout the world. The threats come from a multitude of sources." Included among them is "environmental damage, often arising from population pressures, that destroys land, sickens populations, blocks growth, and manifests itself on a regional and global scale."³⁴ To counter this threat USAID assists nations in development projects that promote better and more efficient management of natural resources and increased prospects for lasting economic growth.

Tunisia offers a good example of a USAID pollution prevention program. After USAID conducted an assessment of a lead battery plant and recommended improvements that would reduce pollution and increase efficiency, the plant invested \$8,000 of its own funds in new equipment and changed its operating procedures. As a result, the plant lowered its annual operating costs by \$770,000 and reduced its lead emissions by 60 percent. As news of this saving spread, other battery plants in Tunisia implemented similar changes. USAID will close its Tunisia Mission at the end of 1995, but pollution prevention activities will be continued by engineers trained by USAID. USAID is currently expanding its pollution prevention activities in several countries including Chile, Morocco, Egypt and India.³⁵

ENVIRONMENTAL PROTECTION AGENCY

"The mission of the U.S. Environmental Protection Agency (EPA) is to protect human health and to safeguard the natural environment — air, water, and land — upon which life depends."³⁶ The EPA has national program responsibility for environmental protection. Among EPA's responsibilities are the requirements to ensure that:

Environmental protection is an integral consideration in U.S. policies concerning natural resources, human health, economic growth, energy, transportation, agriculture, industry, and international trade, and these factors are similarly considered in establishing environmental policy.

The United States plays a leadership role in working with other nations to protect the global environment.³⁷

The EPA defines Environmental Security as "an emerging concept in U.S. policy that combines traditionally defense-related activities with environmental protection. A broad definition of U.S. national security encompasses elements such as such as food, energy, and economic security that can be affected by environmental degradation originating from sources outside the United States."³⁸

Office of International Activities

The Office of International Activities (OIA) at EPA enlists the cooperation of other nations in solving environmental problems of concern to the United States. Through the OIA the EPA is working with the U.S. Departments of State, Defense and Energy to address international environmental conditions or trends that may, over time, have significant negative impacts on U.S. security. The OIA:

- manages of EPA programs with Mexico, Canada, and other priority countries;

- provides leadership, analysis and coordination for international negotiations on trade and environment, marine pollution, and other international policy initiatives;
- manages the Agency's international technology diffusion and technical assistance programs; and
- provides essential support services, including inter-agency coordination, management of the Agency's international travel, and liaison with U.S. missions abroad.

EPA's international programs also support important U.S. foreign policy, economic and security objectives in Russia, China, India, South Africa, Egypt and other critical parts of the world.³⁹

DEPARTMENT OF ENERGY

The Department of Energy (DoE) is responsible for "ensuring our energy security, maintaining the safety and reliability of our nuclear stockpile, cleaning up the environment from the legacy of the Cold War, and developing innovations in science and technology."⁴⁰

Although established in the wake of the energy crisis in the 1970's, its roots go back to the Manhattan Project. The Department has considerable experience and expertise in dealing with environmental issues. At the core of this expertise is its network of technical laboratories. To capitalize on this expertise they have sought a wide array of opportunities to engage in international activities related to environmental security.

Center for Environmental Security

At their Pacific Northwest National Laboratory, the DoE has established the Center for Environmental Security to provide a venue for debate and evaluation of environmental issues that impact national security. "The Center has a principle focus on issues that address the underlying motivation for weapons acquisition. The primary product of environmental security analysis is to develop regional tension-reduction and confidence-building measures based on regional environmental problems in the context of political, military, economic and cultural issues. These measures can consist of a wide range of solutions, from conferences and communication to specific technologies and focused remediation of shared problems."⁴¹

Laboratory Initiatives

At Lawrence Livermore Laboratory (in cooperation with their other laboratories), DoE has formulated a regional Environmental Security Initiative that is designed to address environmental issues related to national security on regional basis:

In the Middle East, in cooperation with the Environmental Protection Agency (EPA), and USAID, they have formed a collaboration between Jordan, Israel, and the Palestinian Authority to develop water-management strategies for the shared aquifers and surface water resources. Several visits have already taken place at selected sites, and a workshop was held in Amman, Jordan, in July 1998 to plan this effort. Laboratory capabilities of particular relevance to this effort include modeling and monitoring of

precipitation, surface and subsurface flow, aquifer withdrawals and recharge, and the hydrology of aquifer environments. The capacity to purify sewage for reuse as drinking water or for aquifer recharge and the possibility of reusing gray water directly for irrigation purposes are also important considerations. Other capabilities that could be important for environmental security in the region include renewable and fossil energy technology, contamination prevention, and environmental remediation.

Talks are under way among the U.S., Russia, and the Scandinavian countries to identify ways of disposing of spent fuel and nuclear waste from decommissioned submarines to avoid further contamination of the Arctic north of Russia. These plans are needed to enable further submarine decommissions and are of interest to the U.S. Department of Defense. Past Russian disposal practices have caused radioactive contamination of Arctic waters, which in turn threatens fish and other ocean resources in that region. Impact studies and mitigation responses are needed to solve this problem.⁴²

INTELLIGENCE COMMUNITY

The Intelligence Community is a group of 13 government agencies and organizations that carry out the intelligence activities of the United States Government. The Director of Central Intelligence (DCI), who also leads the Central Intelligence Agency (CIA), one of the 13 members of the Community, heads the Community. The assets of the intelligence community can be valuable in support of solutions to environmental problems.

Environmental Intelligence

The engagement capacity of U.S. governmental agencies must be focused on areas that are most critical to national interests. The assets of the intelligence community play a key role in providing information to these agencies to assist them in their efforts. Some specific examples of "environmental intelligence" that the community can provide include:

(1) Ongoing Analysis: Reporting and analysis of ongoing environmental, demographic and health developments and trends finds a receptive audience in the policy community. Policy needs include: information and analysis about impending breakthroughs in environmental technologies; early warning of environmental disasters; indications on the course of global epidemics; population trends and their environmental implications; country-specific studies of environmental conditions; population pressures, land tenancy and the differential access of various communal groups to resources.

(2) Negotiations Support: Environmental negotiators need support from the IC both with regard to issues under negotiation, and the positions, strategies and tactics likely to be pursued by other countries.

(3) Treaty Monitoring and Compliance: It is often crucial for policy officials to know whether other countries are meeting the commitments they have made under international environmental agreements—and this has been an area in which the IC has been helpful. In the case of the Montreal Protocol, for example, information about prohibited shipments of CFCs led the parties to the agreements to take further steps to deal with the problem.

(4) Support for Military Operations: Analysts throughout the community, but particularly in defense intelligence, follow environmental and health developments which can impact on military operations. For example, we attempt to assess the environmental dimensions of humanitarian emergencies in which U.S. military and civilian resources and capabilities are likely to be engaged.

(5) Support for the Scientific Enterprise: Satellite imagery gathered and analyzed by the IC over three decades has been recognized by senior policy officials led by Vice President Gore since he was in the Senate as a basic resource in addressing environmental issues.⁴³

DCI Environmental Center

In 1997, then-Director of Central Intelligence John Deutch established the DCI Environmental Center (DEC) to serve "as the focal point for all Intelligence Community activities related to environmental issues. Housed in the Directorate of Intelligence, the Center produces, integrates, and coordinates assessments of the political, economic, and scientific aspects of environmental issues as they pertain to US interests. The DEC also provides data to the environmental community. Specific DEC programs include:

- Assessing transboundary environmental crime.
- Supporting environmental treaty negotiations and assessing foreign environmental policies.
- Assessing the role played by the environment in country and regional instability and conflict.
- Supporting the international environmental efforts of other US Government agencies.
- Providing environmental data to civil agencies.⁴⁴

In establishing the DEC Director Deutch noted that:

Adding an environmental dimension to traditional political, economic, and military analysis enhances our ability to alert policymakers to potential instability, conflict, or human disaster and to identify situations which may draw in American involvement.⁴⁵

DEPARTMENT OF DEFENSE

The Department of Defense (DoD) has long been the primary U.S. governmental agency concerned with security issues. Although it has not been involved in the traditional applications of military power for environmental protection, DoD is involved in a wide array of activities related to Environmental Security. While programs that involve compliance with environmental regulations and pollution prevention have attracted that greatest attention, the issues addressed by DoD's environmental security programs are in reality much broader.

In a speech given at the Army War College in 1997, the Deputy Undersecretary of Defense (Environmental Security) described the Defense Department's program.

The Defense Department's Environmental Security program is challenged with implementing preventive defense and supporting the military mission in three ways:

first, we must protect the health and the environment in which they work and live;

second, we should understand where and under what circumstances environmental issues contribute to conflict; and

third, we must determine where defense environmental cooperation with other nations can contribute significantly to building democracy, trust and understanding.⁴⁶

Deputy Undersecretary of Defense for Environmental Security (DUD(ES))

The DUD(ES) is responsible for environmental, safety and occupational health policies and programs in the Department of Defense. In that capacity he is DoD's agent responsible for meeting the three challenges described above. The expertise that DoD has gained in resolving environmental problems has created a new asset for the Department to use in its engagement strategies.

The U.S. military has a wealth of experience and expertise that it can share with the militaries of other nations. Our defense environmental programs are becoming an important tool in which to engage the militaries of new democracies. In doing so, we can make a small contribution to a better global environment and have a positive influence on their approach to defense and the way they manage resources.⁴⁷

DoD is involved in defense environmental cooperation with Hungary, Poland, the Czech Republic, Norway, Sweden, Russia, and others. Its cooperative efforts share information on specific environmental issues, such as soil and groundwater cleanup, mitigation of aircraft noise, and pollution prevention strategies. They help strengthen civilian control of the military in new democracies and support our global strategy of engagement.⁴⁸

Geographic Commanders-in-Chief (CINC)

"US Armed Forces advance national security by applying military power as directed to help shape the international environment and Respond to the full spectrum of crises, while we also Prepare Now for an uncertain future."⁴⁹ Engagement strategies are central to the military's efforts to shape the environment.

Engagement activities, including information sharing and contacts between our military and the armed forces of other nations, promote trust and confidence and encourage measures that increase our security and that of our allies, partners, and friends. By increasing understanding and reducing uncertainty, engagement builds constructive security relationships, helps to promote the development of democratic institutions, and helps keep some countries from becoming adversaries tomorrow.⁵⁰

The CINCs are the agents through which the military engages other nations. These engagement activities are documented in Theater Engagement Plans (TEPs). Increasingly, environmentally related information from activities such as conferences and technology exchanges are being included in these plans.⁵¹

SYNCHRONIZATION

Solutions to address environmental problems do not align themselves neatly within single agencies. The overlapping responsibilities and expertise among agencies offer the U.S. government some challenges and opportunities in the development and execution of engagement strategies.

The nations that we engage are not likely to be structured identically to the U.S.. Functions that are performed by military agencies in the U.S. (such as water resources development by the U.S. Army Corps of Engineers) may be a completely civilian function in an engaged nation. It is important that the efforts of the varied agencies be optimized in a manner that can provide a synergistic effect. The "Memorandum of Understanding among the Environmental Protection Agency, the Department of Energy, and the Department of Defense Concerning Cooperation in Environmental Security"⁵² is an example of how three agencies have recognized the necessity that their programs complement each other.

CONCLUSION

In 1798, Thomas Malthus wrote "An Essay on the Principle of Population" in which he argued that the world population would increase faster than the food supply, with disastrous results for the general human welfare. Modern neo-Malthusians argue with increasing evidence that Malthus had it right.

A world population of 250 million at the beginning of Christianity has now grown to 5.7 billion in spite of wars, plagues, famine, and epidemics. Unrestrained, this growth could continue until world population approaches 11 billion in the year 2050. (Using currently assumed declining growth rates). An unchecked continuation of the AIDS epidemic would infect 320 million people by the year 2050 but would have a negligible effect on the total food requirements of the 11,000 million.

Each month the world adds another New York City. The 300,000 Somalis who died of starvation in late 1992 were replaced in only 29 hours.⁵³

The growing world populations and the stress they will place on resources will take on greater importance to security planners as those stresses increase. Efforts taken to ease those stresses will be of interest to developing and developed nations alike and successes in addressing these problems will promote quality of life and regional stability. Engagement strategies addressing environmental problems and building relationships are likely to play an increasingly important role in U.S. Security Strategy.

WORDCOUNT = 6718

ENDNOTES

¹ The White House, "A National Security Strategy for a New Century," December 1999; available from < <http://www.whitehouse.gov/WH/EOP/NSC/html/documents/nssr-1299.pdf>>; Internet; accessed 20 JAN 2000, iii.

² Ibid., 1.

³ Ibid., 3.

⁴ Ibid., 3.

⁵ This is not to suggest that other concerns are not relevant, but rather that they can be viewed as either contributors to or subsets of one or more of these three core functions. For example, the lack of a participative form of government will ultimately lead to political instability.

⁶ Loraine Elliott, "What is Environmental Security? A Conceptual Overview," in The Environment and Security: What are the Linkages, ed. Alan Dupont (Canberra: Australian National University, 1998), 7.

⁷ Arthur Westling, "Environmental Warfare: Manipulating the Environment for Hostile Purposes," linked from ESCP Report 3; available from < <http://ecsp.si.edu/ecsplib.nsf/Publications>>; Internet; accessed 27 March 2000.

⁸ Ibid.

⁹ Kofi A. Annan, "Letter Dated 9 June 1999 from the Secretary-General Addressed to the President of the Security Council," 9 June 1999; available from <<http://www.un.org/Docs/sc/letters/1999/s1999662.htm>>; Internet; accessed 7 April 2000.

¹⁰ Westling.

¹¹ Westling.

¹² As an example one may look at how issues such as the banning of anti-personnel landmines and respect for human rights have risen to a level of prominence in international discourse.

¹³ U.S. Department of Defense. "Report of the Secretary of Defense to Congress and the President," 31 May 1994; available from <<http://www.denix.osd.mil/denix/Public/ES-Programs/ES/Documents/note3.html>>; Internet; accessed 28 March 2000.

¹⁴ Sheri W. Goodman, "Speech to the Army War College - 2/10/97"; available from <<http://www.denix.osd.mil/denix/Public/ES-Programs/Speeches/speech-25.html>>; Internet; accessed 28 March 2000.

¹⁵ U.S. Department of Defense.

¹⁶ DCI Environmental Center and National Intelligence Council, "The Environmental Outlook in Russia," Intelligence Community Assessment 98-08, January 1999, p. 15-16.

¹⁷ Jimmy Carter, "State of the Union Speech 1980"; available from <<http://redbud.liblib.utexas.edu/carter/homepage/su80jec.htm>>; Internet; accessed 14 OCT 1999.

¹⁸ W. Harriet Critchley and Terry Terriff, "Environment and Security" in Security Studies for the 1990's, ed. Richard Schultz, Roy Godson and Ted Greenwood (McLean, VA: Brassey's, 1993), 332.

¹⁹ Peter Gleick, "Environment and Security: The Clear Connections" in The Bulletin of the Atomic Scientists 47 (April 1991): available from <<http://www.bullatomsci.org/issues/1991/a91/a91toc.html>>; Internet; accessed 14 OCT 1999.

²⁰ Critchley, 332.

²¹ This phenomenon is often referred to as the consumption of the resource's "capital": The capital generates "income" that can be tapped for human consumption. A sustainable economy can therefore be defined as one that leaves the capital undamaged and intact so that future generations can enjoy the undiminished income. Thus, if topsoil creation in a region of farmland is 0.25 millimeters per year, then average soil loss should not exceed that amount.

²² Thomas F. Homer-Dixon, Jeffrey H. Boutwell and George W. Rathjens, "Environmental Change and Violent Conflict," Scientific American 268 (February 1993): 40.

²³ Ibid.

²⁴ Ibid.

²⁵ Critchley, 332.

²⁶ Gerald B. Thomas, "U.S. Environmental Security Policy: Broad Concern or Narrow Interests," Journal of Environment & Development 6 (December 1997): [database on-line]; available from Lexis-Nexis.

²⁷ U.S. Army War College, Center for Strategic Leadership, India Environmental Security Engagement Workshop Report (Carlisle Barracks: Center for Strategic Leadership, 28 April 1999), 3.

²⁸ U.S. Department of State, "Focus on Diplomacy," available from <http://www.state.gov/www/about_state/diplomacy.html>; Internet; accessed 4 April 2000.

²⁹ Warren Christopher, "Integrating Environment Issues into the Department's Core Foreign Policy Goals," memorandum to All Under and Assistant Secretaries, Washington, D.C., 14 FEB 1996; available from <http://www.pnl.gov/ces/policy/ww_2war2.htm>; Internet; accessed 14 October 1999

³⁰ Ibid.

³¹ The State Department has established the following "Hubs": Addis Ababa, Ethiopia (East African Hub) - Desertification and regional water management issues; Amman, Jordan (Middle Eastern Hub) - Regional cooperation on water resources and protection of the Gulf of Aquaba as part of the Middle East Peace Process; Bangkok, Thailand (Southeastern Hub) - Sustainable management of forest and marine resources; Copenhagen, Denmark (Baltic and Nordic States Hub) - Cooperation on environmental and science and technology issues and the Department's Northern Europe Initiative; Kathmandu, Nepal (South Asian Hub) - Promotion of regional cooperation on alternative energy, water sharing, and

environmental disaster preparedness; San Jose, Costa Rica (Central American and Caribbean Hub) - Loss of forests and coastal zone management; Tashkent, Uzbekistan (Central Asian Hub) - Cooperation on water related problems in the Aral Sea Basin; Abidjan, Cote D'Ivoire (West and Central African Hub): Sustainable management of tropical forests and wildlife, desertification, and pollution issues; Ankara, Turkey (Central Asian Hub) - Cooperation oil transport issues, pollution prevention, and fisheries depletion in the Black and Caspian Seas; Brasilia, Brazil (South American Hub) - Deforestation and biodiversity loss in the Amazon basin and urban pollution problems; Pretoria, South Africa (Southern Africa Hub) - Deforestation and desertification and promotion of cleaner production technologies; Tokyo, Japan (East Asian Hub) - Transboundary environmental issues and the promotion of energy efficiency and renewable energies.

³² U.S. Department of State, Bureau of Oceans and International Environmental and Scientific Affairs, "Issue Spotlight: Regional Environmental Issues and Hub Program," available from <http://www.state.gov/www/global/oes/envir_hubs/index.html>; Internet; accessed 4 April 2000.

³³ U.S. Agency for International Development, "USAID & the Environment," available from <<http://www.info.usaid.gov/environment/>>; Internet; accessed 4 April 2000.

³⁴ U.S. Agency for International Development, "Overview," available from <<http://www.info.usaid.gov/about/overview.htm>>; Internet; accessed 4 April 2000.

³⁵ Ibid.

³⁶ U.S. Environmental Protection Agency, "EPA's Mission," available from <<http://www.epa.gov/epahome/epa.html>>; Internet; accessed 10 March 2000.

³⁷ U.S. Environmental Protection Agency, "Agency Mission Statement," available from <<http://www.epa.gov/history/faqs/mission.htm>>; Internet; accessed 10 March 2000.

³⁸ U.S. Environmental Protection Agency, "EPA'S Environmental Security Mission Statement," available from <<http://www.epa.gov/oia/secure1.htm>>; Internet; accessed 10 March 2000.

³⁹ U.S. Environmental Protection Agency, "Role of the Office of International Activities (OIA)," available from <<http://www.epa.gov/oia/about2.htm#role>>; Internet; accessed 10 March

⁴⁰ U.S. Department of Energy, "History," available from <<http://www.doe.gov/glance/doehist.htm>>; Internet; accessed 4 April 2000.

⁴¹ U.S. Department of Energy, Pacific Northwest Laboratory, "Overview (of the Center for Environmental Security)," available from <<http://www.pnl.gov/ces/overview.htm>>; Internet; accessed 4 April 2000.

⁴² U.S. Department of Energy, Lawrence Livermore National Laboratory, "Environmental Security Initiatives" in Institutional Plan 1999-2003, October 1998, available from <<http://www.llnl.gov/llnl/ip/1999/s4-2-6.html>>; Internet; accessed 4 April 2000.

⁴³ Richard Smith, "The Intelligence Community and the Environment: Capabilities and Future Missions," Environmental Change and Security Project, The Woodrow Wilson Center, Spring 1996; available from <http://www.pnl.gov/ces/dialogue/ww_3smit.htm>; Internet; accessed 14 OCT 1999.

⁴⁴ U.S. Central Intelligence Agency, "DCI Environmental Center", available from <<http://www.cia.gov/cia/di/mission/dec.html>>; Internet; accessed 6 April 2000.

⁴⁵ U.S. Central Intelligence Agency, DCI Environmental Center, DCI Environmental Center Brochure, (Vienna, VA: DCI Environmental Center, 8 December 1999).

⁴⁶ Goodman.

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ John M. Shalikashvili, "National Military Strategy: Shape, Respond, Prepare Now – A Military Strategy for a New Era," 1997, available from <<http://www.dtic.mil/jcs/nms/executiv.htm>>; Internet; accessed 4 April 2000.

⁵⁰ Ibid.

⁵¹ A limitation upon the ability of the CINC to conduct Environmental Engagement activities is a lack of expertise within his organization. The manning documents for these staffs normally have one officer (usually in the grade of O4) responsible for environmental programs. Normally that officer's responsibilities are concentrated exclusively on environmental compliance activities by assigned forces. The CINC's engagement activities rely on employing other organizations (such as the DUSD(ES)) to support these activities. The U.S. Army Corps of Engineers currently has proposed aligning its organization to provide direct support to the geographic CINC's for the full array of engineering services. Support to the CINC's environmental engagement activities could easily be included in this relationship.

⁵² William J. Perry, Hazel O'Leary and Carol M. Browner, "Memorandum of Understanding among the Environmental Protection Agency, the Department of Energy, and the Department of Defense Concerning Cooperation in Environmental Security," available from <http://www.defenselink.mil/pubs/envvest_mou.html>; Internet; accessed 4 April 2000.

⁵³ "The Malthus Syndrome," available from <<http://www.kalama.com/~dgbemtsen/MaltSynSoc.htm>>; Internet; accessed 4 April 2000.

BIBLIOGRAPHY

- "The Malthus Syndrome." Available from <<http://www.kalama.com/~dgbemtsen/MaltSynSoc.htm>>. Internet. Accessed 4 April 2000.
- Albright, Madeline. "Letter from Secretary Of State Albright." In Environmental Diplomacy: The Environment and U.S. Foreign Policy. July 1997. Available from <<http://www.pnl.gov/ces/earth/albright.htm>>. Internet. Accessed 14 October 1999.
- Annan, Kofi A. "Letter Dated 9 June 1999 from the Secretary-General Addressed to the President of the Security Council." 9 June 1999. Available from <<http://www.un.org/Docs/sc/letters/1999/s1999662.htm>>. Internet. Accessed 7 April 2000.
- Carter, Jimmy. "State of the Union Speech 1980." Available from <<http://redbud.libjlib.utexas.edu/carter/homepage/su80jec.htm>>. Internet. Accessed 14 OCT 1999.
- Christopher, Warren. "Integrating Environment Issues into the Department's Core Foreign Policy Goals." Memorandum to All Under and Assistant Secretaries, Washington, D.C., 14 FEB 1996. Available from <http://www.pnl.gov/ces/policy/ww_2war2.htm>. Internet. Accessed 14 October 1999.
- Critchley, W. Harriet and Terry Terriff. "Environment and Security." In Security Studies for the 1990's, ed. Richard Schultz, Roy Godson and Ted Greenwood, 327-351. McLean, VA: Brassey's, 1993.
- DCI Environmental Center and National Intelligence Council. "The Environmental Outlook in Russia." Intelligence Community Assessment 98-08. January 1999.
- Elliott, Loraine. "What is Environmental Security? A Conceptual Overview," The Environment and Security: What are the Linkages, ed, Alan Dupont, 7-21. Canberra: Australian National University, 1998.
- Gleick, Peter. "Environment and Security: The Clear Connections." The Bulletin of the Atomic Scientists 47 (April 1991). Available from <<http://www.bullatombsci.org/issues/1991/a91/a91toc.html>>. Internet. Accessed 14 October 1999.
- Goodman, Sherri W. "Speech to the Army War College – 2/10/97." Available from <<http://www.denix.osd.mil/denix/Public/ES-Programs/Speeches/speech-25.html>>. Internet. Accessed 28 March 2000.
- Homer-Dixon, Thomas F., Jeffrey H. Boutwell and George W. Rathjens. "Environmental Change and Violent Conflict." Scientific American 268 (February 1993): 38-45.
- Perry, William J., Hazel O'Leary and Carol M. Browner. "Memorandum of Understanding among the Environmental Protection Agency, the Department of Energy, and the Department of Defense Concerning Cooperation in Environmental Security." Available from <http://www.defenselink.mil/pubs/envvest_mou.html>. Internet. Accessed 4 April 2000.
- Shalikhvili, John M. "National Military Strategy: Shape, Respond, Prepare Now -- A Military Strategy for a New Era." 1997. Available from <<http://www.dtic.mil/jcs/nms/executiv.htm>>. Internet. Accessed 4 April 2000.
- Smith, Richard. "The Intelligence Community and the Environment: Capabilities and Future Missions," Environmental Change and Security Project. The Woodrow Wilson Center. (Spring 1996). Available from <http://www.pnl.gov/ces/dialogue/ww_3smit.htm>. Internet. Accessed 14 October 1999.

- The White House. "A National Security Strategy for a New Century." December 1999. Available from <<http://www.whitehouse.gov/WH/EOP/NSC/html/documents/nssr-1299.pdf>>. Internet. Accessed 20 January 2000.
- Thomas, Gerald B. "U.S. Environmental Security Policy: Broad Concern or Narrow Interests." Journal of Environment & Development 6 (December 1997): 397-425. Database on-line. Available from Lexis-Nexis.
- U.S. Agency for International Development. "Overview." Available from <<http://www.info.usaid.gov/about/overview.htm>>. Internet. Accessed 4 April 2000.
- U.S. Agency for International Development. "USAID & the Environment." Available from <http://www.info.usaid.gov/environment/>. Internet. Accessed 4 April 2000.
- U.S. Army War College, Center for Strategic Leadership. India Environmental Security Engagement Workshop Report. Carlisle Barracks: Center for Strategic Leadership, 28 April 1999.
- U.S. Central Intelligence Agency, DCI Environmental Center. DCI Environmental Center Brochure. Vienna, VA: DCI Environmental Center, 8 December 1999.
- U.S. Central Intelligence Agency. "DCI Environmental Center". Available from <<http://www.cia.gov/cia/di/mission/dec.html>>. Internet. Accessed 6 April 2000.
- U.S. Department of Defense. "Report of the Secretary of Defense to Congress and the President." 31 May 1994. Available from <<http://www.denix.osd.mil/denix/Public/ES-Programs/ES/Documents/note3.html>>. Internet. Accessed 28 March 2000.
- U.S. Department of Energy, Lawrence Livermore National Laboratory. "Environmental Security Initiatives." In Institutional Plan 1999-2003. October 1998. Available from <http://www.llnl.gov/llnl/ip/1999/s4-2-6.html>. Internet. Accessed 4 April 2000.
- U.S. Department of Energy, Pacific Northwest Laboratory. "Overview (of the Center for Environmental Security)." Available from <<http://www.pnl.gov/ces/overview.htm>>. Internet. Accessed 4 April 2000.
- U.S. Department of State, Bureau of Oceans and International Environmental and Scientific Affairs. "Issue Spotlight: Regional Environmental Issues and Hub Program." Available from <http://www.state.gov/www/global/oes/envir_hubs/index.html>. Internet. Accessed 4 April 2000.
- U.S. Environmental Protection Agency. "Agency Mission Statement." Available from <<http://www.epa.gov/history/faqs/mission.htm>>. Accessed 10 March 2000.
- U.S. Environmental Protection Agency. "EPA'S Environmental Security Mission Statement." Available from <<http://www.epa.gov/oia/secure1.htm>>. Accessed 10 March 2000.
- Westling, Arthur. "Environmental Warfare: Manipulating the Environment for Hostile Purposes." Linked from ESCP Report 3. Available from <<http://ecsp.si.edu/ecsplib.nsf/Publications>>. Internet. Accessed 27 March 2000.