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**ENVIRONMENTAL SECURITY AND ENGAGEMENT  
IN CENTRAL COMMAND**

**BY**

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USAWC STRATEGY RESEARCH PROJECT

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IN CENTRAL COMMAND**

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## ABSTRACT

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The National Security Strategy (NSS) and the National Military Strategy (NMS) both emphasize engagement as a critical method in achieving U.S. security objectives and the environment as an important issue. The environment and Environmental Security (ES) are critical to the long-term economic vitality, health of the populace and regional stability in the Central Command (CENTCOM) area of responsibility (AOR). To prevent or mitigate ES related regional instability and transboundary threats, directly and indirectly, enhances the welfare and security of the U.S. ES issues can be used as the foci to enhance regional security, communications, cooperation and confidence between the U.S. and nations in the CENTCOM AOR. The CINC can leverage ES issues to initiate or continue a variety of non-threatening bilateral or multilateral engagement activities. This paper will analyze the NSS and NMS to determine national security objectives in the region and as they relate to ES issues. The basic tenets of ES and a comparison to environmental issues will be discussed. The ES issues within the AOR will be briefly analyzed and presented. The CENTCOM Theater Engagement Plan (TEP) will be analyzed with a focus on objectives that can be aided or achieved using ES issues. A discussion of Department of Defense (DOD) and non-DOD organizations that can and should interact in the ES engagement area to further the TEP will be explored. Finally, a comprehensive, multidisciplinary ES activities "menu" will be presented that can be used to enhance the overall engagement plan, achieve U.S. security objectives and minimize transboundary ES threats.



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## ENVIRONMENTAL SECURITY AND ENGAGEMENT IN CENTRAL COMMAND

Decisions today regarding the environment and natural resources can affect our security for generations. Environmental threats do not heed national borders and can pose long-term dangers to our security and well being. Natural resource scarcities can trigger and exacerbate conflict.

—National Security Strategy<sup>1</sup>

This research paper will analyze and discuss the relationship and benefits of using environmental security issues and policy as a means to focus and enhance a theater engagement plan (TEP). There will be an analysis of the broad concepts of engagement, environmental issues and environmental security (ES). This research paper will propose the use of a multi-agency approach to environmental issues as a means to achieve an effective ES policy in support of the TEP and national security objectives. This paper is not about the traditional aspects of environmental protection and is not a paper about domestic environmental policy. This paper is about the use of environmental issues as part of an engagement policy to promote strategic U.S. objectives; improve quality of life and economy within a nation, enhance regional stability by assisting in regional environmental issues and enhancing U.S. security by minimizing transboundary environmental threats. This paper will focus on the Central Command (CENTCOM) Area of Responsibility (AOR) and demonstrate how environmental issues can be used as part of the TEP to build confidence, enhance bilateral and multilateral understanding and enhance regional stability.

Environmental security is a vague, ill defined and imprecise term in part because there are no accurate consensus definitions. Most of the traditional definitions are focused on preservation, remediation or security of the environment. Newer definitions discuss the relationship of people and national power to the environment.

Since the end of the Cold War and the breakup of the Soviet Union there have been sweeping changes in our view and policies of national security concerns, challenges and the ways and means to achieve the desired end-state. There have

been environmentalists and concerns about the environment in some form or another throughout history, but environmental concerns were not discussed seriously until the 1960's. The precipitating event was Rachel Carson's book "Silent Spring".<sup>2</sup> There had been some discussions and debate about how environmental issues or crises could relate to foreign policy and national security but it was not until 1991 that this potential relationship gained notoriety. In 1991 President Bush added a statement on environmental issues to the National Security Strategy<sup>3</sup> and Thomas Homer-Dixon published his paper "On The Threshold: Environmental Changes As Causes Of Acute Conflict". Dixon's thesis is:

I propose that poor countries will in general be more vulnerable to environmental change than rich ones; therefore, environmentally induced conflicts are likely to rise first in the developing world. In these countries, a range of atmospheric, terrestrial, and aquatic environmental pressures will in time probably produce, either singly or in combination, four main, causally interrelated social effects: reduced agricultural production, economic decline, population displacement and disruption of regular and legitimized social relations. These social effects in turn may cause several specific types of acute conflict, including scarcity disputes between countries, clashes between ethnic groups, and civil strife and insurgency, each with potentially serious repercussions for the security interests of the developed world.

Thomas F. Homer-Dixon<sup>4</sup>

## NATIONAL STRATEGY

The National Security Strategy (NSS) frequently states the importance of the environment and engagement. In fact the importance of these two concepts are clearly stated in the introduction to the NSS:

Other problems that once seemed quite distant—such as resource depletion, rapid population growth, environmental damage, new infectious diseases and uncontrolled refugee migration—have important implications for American security.

American leadership and engagement in the world are vital for our security, and our nation and the world are safer and more prosperous as a result.

We must be prepared and willing to use all appropriate instruments of national power to influence the actions of other states and non-state actors.

We seek a cleaner global environment to protect the health and well being of our citizens. A deteriorating environment not only threatens public health, it impedes economic growth and can generate tensions that threaten international stability.<sup>5</sup>

There is no specific use of the term environmental security or discussion of how the environment relates to engagement policy but there is significant discussion on the

importance of the environment and engagement as distinct and separate issues. There are also many statements that correlate how a stable or improved environmental situation can serve as a catalyst for improving regional and international stability. There are also statements that discuss how deteriorating environmental conditions could lead to regional instability. The NSS also states environmentally related goals that include; to increase compliance with regard to various agreements and treaties to include the 1997 Kyoto Agreement, Montreal Protocol, Law of the Sea Convention, 1994 Cairo Conference, Convention to Combat Desertification and the Biodiversity Convention to name a few.

NSS objectives in the CENTCOM AOR are diverse due to the diverse geographic areas and political situations. In general the objectives are; to deter threats to regional stability, counter threats from weapons of mass destruction, protect the security of our regional partners, ensure the free flow of oil and promote prosperity.<sup>6</sup>

The National Military Strategy (NMS) describes peacetime engagement as “all military activities involving other nations intended to shape the security environment in peacetime.” “Engagement serves to demonstrate our commitment; improve interoperability; reassure allies, friends and coalition partners; promote transparency; convey democratic ideals; deter aggression; and help relieve sources of instability before they can become military crises.” Unfortunately, there are no statements that relate environmental issues or environmental security to an engagement plan.<sup>7</sup>

## ENGAGEMENT

It should be stressed that the broad range of capabilities within the military permit the national leadership to use the military – in which it has invested so much – for more than the traditional combat role.

—Admiral Paul D. Miller<sup>8</sup>

Engagement can be described in many different ways. A definitive description of engagement should include:

- A strategic concept that guides coordinated application of political, economic, informational and military means to enhance stability and promote democratic ideals
- A coordinated Department of State and Department of Defense operation controlled by the country team
- Predominantly non-hostile activity characterized by the benign (non-lethal) use of military forces to stabilize potential crises.<sup>9</sup>

Engagement may take many forms. Examples include conferences in the continental U.S. or in the AOR., attendance at various training courses, visitation and observation of Department of Defense (DOD) or non-DOD agencies, military to military training, large-scale multinational exercises and the development of relatively permanent changes in local attitudes and capabilities. ES focused engagement activities are beneficial to the U.S., the host nation(s) and the AOR for a number of reasons. Some of these are listed below:

#### U.S. Benefits

- May prevent environmental issues from becoming threats to the U.S.
- Develops professional relationships with the senior military and civilian leadership.
- Allows the U.S. to perform engagement activities in a non-threatening or aggressive manner.
- May allow for bilateral or multilateral engagement where traditional military training is inappropriate
- Enhance the image of the U.S and U.S. military to the populace, senior military and civilian leadership of the partner nation / region.

### Host Nation Benefits

- Receives assistance on environmental issues that will enhance the economy and quality of life.
- Improves resource quantity and utilization that may minimize internal friction.
- Receives U.S. training in many different disciplines.
- Creates a more positive perception of the military and government within and outside of the nation's borders.
- Coordinated actions will allow for greater assistance from other governmental and international organizations.
- Non-military assistance will be perceived as less of a threat to sovereignty of the nation and less of a threat to the military balance in the region.

### Regional Benefits

- Facilitates multilateral conferences and negotiations on regional issues.
- Provides a forum for synchronize assets for regional concerns.
- Promotes greater integration and distribution of assistance from other governments and multinational organizations.

## ENVIRONMENTAL ISSUES AND ENVIRONMENTAL SECURITY

Implicit in this argument is the notion that local or regional instability, arising from a combination of environmental, resource and political factors, may escalate to the international level and may become violent. Thus, it is imperative to clarify the terms of the debate, and to identify and analyze those cases in which environmental variables threaten security.

—Peter Gleick<sup>10</sup>

This section will analyze the concepts associated with the term environmental security (ES) and the relationship of environmental issues to ES issues. ES represents significantly different ideas and concepts to different people and organizations. There is no standard Department of Defense (DOD) or Department of the Army (DA) definition

off this term. Most often individuals and organizations craft a definition or description that supports their area of concern, interest or parochial agenda.

DOD Directive 4715.1, Environmental Security, focuses on the applicability, scope and over-arching policies to support the environment. The "definition" of ES in this document is more a policy statement and description of programs focused on environmental protection than a true definition.

Environmental Security – The environmental security program enhances readiness by institutionalizing the Department of Defense's environmental safety, and occupational health awareness, making it an integral part of the Department's daily activities. Environmental Security is comprised of...<sup>11</sup>

Ms. Sherri Goodman, Deputy Under Secretary of Defense for Environmental Security, described ES in testimony before the Senate Armed Services Committee in terms related to the Secretary of Defense's Shape, Respond and Prepare strategy:

SHAPE the international environment in ways favorable to U.S. interests, promoting regional stability through military to military cooperation

RESPOND by supporting critical environmental and health requirements for military operations.

PREPARE by sustaining access to land, air and sea for training through responsible management of our installations and training land.<sup>12</sup>

In an effort to determine an appropriate definition of ES, a study was conducted by the Millenium Project of the American Council for the United Nations University in 1998. The results of this study demonstrated the lack of a concise consensus definition but did find some common elements to the definition of ES. These include:

- Public safety from environmental dangers caused by natural or human processes due to ignorance, accident, mismanagement or design
- Amelioration of natural resource scarcity
- Maintenance of a healthy environment
- Amelioration of environmental degradation
- Prevention of social disorder and conflict (promotion of social stability)<sup>13</sup>

Imprecise, disparate, nonconsensual definitions and usage of the term ES lead to significant confusion domestically and internationally. This confusion is exacerbated by the different if not conflicting ways that environmentalists and security policy makers use the term. Environmentalist's use this term in a traditional manner characterized by the first four common elements listed above. The same perspective is observed when ES term is used in the context of domestic concerns. ES as it relates to engagement focuses on the fifth common element noted above. However, the first four elements characterize the environmental issues that may be used to focus the ES Annex to the TEP.

From a practical point of view ES involves the interrelationship of the environment, regional and national security, health of a population and the economy. From an Army operational perspective, ES also relates to protecting the soldier from the environment and protecting the environment from the soldier. These diverse factors must be analyzed as they relate to: populations and regions within a country, regional stability, shared environmental issues within a region and transboundary environmental and security threats to the US. Peter Gleick identifies four environmental security or resource threats:

- Access to or control of resources as strategic goals
- Attacks on manmade or natural resources
- Resources as military tools
- Disruption to environmental services<sup>14</sup>

Richard Ullman describes ES issues as follows:

A threat to national security is an action or sequence of events that: 1) threatens drastically and over a relatively brief span of time to degrade the quality of life for the inhabitants of a state, or 2) threatens significantly to narrow the range of policy choices available to the government of a state or to private, non-governmental entities (persons, groups, corporations) within a state.<sup>15</sup>

A working definition of ES for this paper is the analysis and policy actions involving manmade or natural environmental issues and resources, whose scarcity, degradation, usage, or perceived unequal allocations may, directly or indirectly, cause friction,

instability or conflict globally or within a nation or region. These issues may pose a direct threat to the U.S. or strategic U.S. security objectives.

It is time to understand "the environment" for what it is: the national security issue of the early twenty-first century. The political and strategic impact of surging populations, spreading disease, deforestation and soil erosion, water depletion, air pollution, and, possibly, rising sea levels in critical overcrowded regions like the Nile Delta and Bangladesh—developments that will prompt mass migrations and, in turn, incite group conflicts—will be the core foreign policy challenge from which most others will ultimately emanate, arousing the public and uniting interests left over from the Cold War.

—Robert D. Kaplan<sup>16</sup>

It is important to understand that not all environmental issues are ES issues. There are a number of environmental issues around the world that do not have any relation to U.S. security in terms of regional security or international environmental effects. Dr. Brian Shaw clearly identifies the relationship between environmental issues and security:

First it is important to recognize that both security and environmental issues are contextual; the extent and impact of a given problem is relative to its location and sensitivity of the system affected. Second, it is the security issue that provides the context for understanding the impacts of environmental issues; third, the analysis of environmental issues must be compatible with the analyses of related security issues.<sup>17</sup>

Many military personnel often have a negative or distorted view of environmental issues and activities based on inaccurate information and minimal experience as it relates to training restrictions and base operations. Environmental issues should be viewed as resource issues, challenges and opportunities. Governments, organizations and individuals perceive environmental issues very differently. Environmental issues often exist because of economic prioritization; short term gains exchanged for long-term sustainable growth. Examples include use of cheap fossil fuels versus newer (and more expensive solar technology), increased pollution to save the cost of more expensive pollution prevention technologies and the use of traditional irrigation methods that consume more water but cost less than newer methods.

Many environmental issues will not affect the stability of nation states or regions. Most sources agree that there has not been a conflict solely attributable to an

environmental issue but this is very controversial. These same sources agree that environmental issues may exacerbate other social and political issues that will lead to conflict. These issues are environmental security issues. The U.N. Environmental Program published a report in 1999 that lists and describes in detail a number of intranational and international conflicts attributable to environmental issues. A significant number of these conflicts were over water and occurred in the CENTOM AOR. The nations involved included Israel, Jordan, Syria, Iraq, Turkey, Egypt, Ethiopia, Chad and Sudan.<sup>18</sup>

Unlike war, traditional natural disasters or man made disasters most of the environmental issues evolve very slowly. It is difficult to determine when a critical environmental change is occurring or when a change in some aspect of the environment will have a significant and destabilizing affect on a nation or a region. Environmental issues affect the security of a nation by causing a significant degradation of the quality of life of its people usually in terms of health or the economy. These events may be the etiology of or exacerbate other stressors that may lead to internal or regional instability.

#### CENTCOM THEATER ENGAGEMENT PLAN

The CENTCOM AOR encompasses a vast area that is extremely diverse in terms of culture, geography and relationships of nations to the U.S. The AOR encompasses an area approximately 3,100 miles east to west and 3,600 miles north to south, 428 million people of 17 ethnic groups in 25 different countries.

The CENTCOM TEP is consistent with the objectives of the NSS and NMS. The CINC's vision states "...expanding engagement activities, and integrating our efforts with other supporting organizations."<sup>19</sup>

CENTCOM considers engagement as one of its three key areas (the other two are warfighting and development). Engagement goals include "Develop integrated regional approaches through cooperation with counterparts in the interagency, other unified commands and key non-governmental and private volunteer organizations." One of the Development goals is "Promote and support environmental and humanitarian efforts and provide prompt response to humanitarian and environmental crises."<sup>20</sup>

CENTCOM divides its AOR into four sub-regions. These four sub-regions are the Arabian Peninsula and Iraq, Horn of Africa, Northern Red Sea and South and Central Asia.

SUB-REGION	NATIONS
Arabian Peninsula and Iraq	Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen
Northern Red Sea	Egypt and Jordan
Horn of Africa	Djibouti, Eritrea, Ethiopia, Kenya, Seychelles, Somalia, Sudan
South and Central Asia	Afghanistan, Iran, Kazakstan, Kyrgystan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan

TABLE 1 CENTCOM AOR

Many common challenges exist throughout the AOR and others are specific to a sub-region or a nation. More importantly it is the relative criticality, magnitude and challenges presented by the ES issues that change between the sub-regions. The most common environmental issues in this AOR and perhaps throughout the world are increasing populations, a limited water supply and industrial pollution. The other significant concern is climate change. A thorough analysis of all the ES issues in this AOR is beyond the scope of this paper. Some examples of the ES issues are discussed below:

#### POPULATION

It may be a simplistic generalization but the ever-increasing human population can be considered the major source of all other environmental problems and the source of environmental security challenges and opportunities. The increasing population increases demands for water, food, energy and consumer products. The rapidly increasing population directly or indirectly increases all forms of waste generation and energy requirements.

The earth's population has increased dramatically; 1 billion in 1804, 2 billion in 1927, 3 billion in 1960, 4 billion in 1974, 5 billion in 1987 and 6 billion in 1999.<sup>21</sup>

Besides rapid population growth, this AOR exhibits large-scale population movements and differential population growth patterns; less affluent nations and population groups demonstrate the most significant population increases.

These two factors are coupled with increasing urbanization in those countries. For example nations with significant Islamic populations had population increases 2.8% while other underdeveloped non-Islamic nations were 2.3%. Israel by comparison was 1.5%.<sup>22</sup> Overall the population in the Middle East is supposed to double in the next 25 years.<sup>23</sup>

## **WATER**

The next war in the Middle East will be over water, not politics.

Boutros-Boutros Ghali<sup>24</sup>

Increasing water usage for industry, agriculture and personal consumption puts greater demands on an already severely strained water supply system. Water consumption in the Middle East can is generally 73% for irrigation, 21% for industrial use 6% for individual use. Per capita water usage has increased 50% since 1950.<sup>25</sup> Most authorities agree that water is the most crucial resource in the Middle East and the greatest potential for conflict. "Water scarcity poses a clear threat to internal or domestic security by contributing to health problems, civil strife, economic crises and institutional failures."<sup>26</sup>

In fact the continued distribution of water from limited river systems and aquifers is crucial for the survival of these states. The Nile, Tigris-Euphrates and the Jordan River systems are potential flash points, directly related to water access and directly affect the national security of many nations in the region and potentially the US. Turkey has the potential to significantly decrease the down stream water supply to Iraq and Iran for almost a year. The Jordan River is essentially the sole source of freshwater in Jordan and Israel. Jordan already consumes more water than the Jordan River can supply.<sup>27</sup>

Another example is that of the Mountain Yarqon-Tamnim aquifer located in the West Bank area of Israel/Palestine. This aquifer provides one-half of Israel's annual supply of groundwater and one quarter of its renewable freshwater. Continued over use of this aquifer is causing an increased seepage of salt water into the water supply, decreasing the capability of this essential aquifer to be used for drinking and irrigation.<sup>28</sup>

The Nile is the lifeblood of Egypt. Yet the flow of the Nile can be controlled by upstream African nations posing a significant ES issue for Egypt.<sup>29</sup> To complicate this tenuous situation, in 20 years Egypt's water requirements will exceed its allotted share of the Nile by 60%. Boutros B. Ghali stated "The national security of Egypt is in the hands of eight other African countries in the Nile basin."<sup>30</sup>

#### **DISEASE**

In spite of significant medical advances infectious disease continues to be a major environmental issue. The health of a population is actually a non-specific but sensitive indicator of a variety of other environmental issues.<sup>31</sup> Infectious disease is still the leading cause of death throughout most of the world and the predisposing conditions include urbanization, over crowding, migration, and a shortage of basic public health requirements. There are other environmentally related disease issues: climate change affects disease vectors potentially increasing the area of endemic disease; and the rise in antibiotic resistant organisms due to the use of antibiotics in animal feed and the questionable quality and usage practices in prescriptions.<sup>32</sup>

#### **HAZARDOUS WASTE AND INDUSTRIAL POLLUTION**

Industrial pollution and hazardous waste management are critical environmental factors in this AOR. This is a significant and growing problem that has largely been ignored due to a variety of factors to include long-standing culture and custom, economic factors and a historically low population density. Concerns about pollution and waste management are only an item of recent interest. During the Operation Desert Storm Iraq ignited 732 Kuwait oil wells producing ½ a million tons of aerial pollutants into the atmosphere and released millions of gallons of crude oil into the Persian Gulf as a "weapon" of war. This placed soldiers and the local populations at

risk for significant acute and chronic health problems. This action also demonstrated the critical vulnerability to the water desalinization plants that draw their water from the Persian Gulf.<sup>33</sup> Many of the former republics of the Soviet Union are faced with environmental security challenges related to the pollution of ground and surface water from industrial and military pollution. Throughout the AOR, household and industrial wastes pollute most surface water. Rivers are used as sewers.

## ES ENGAGEMENT PLAN DEVELOPMENT

Although no one wants environmental degradation and scarcity both are significant in the AOR and both can lead to confrontation and conflict. In the past particularly in some regions, military institutions have played a very significant role in increasing these problems. Militaries can help by limiting the environmental damage they do; more dramatically they play a key role in responses to environmental disaster. Environmental cooperation can build democracy, trust, understanding, and may avoid costly military interventions

—EUCOM TEP<sup>34</sup>

Previous sections of this paper have discussed U.S. national strategy, the CENTCOM TEP, environmental issues and their relationship to regional and global security and stability. This section will discuss the methods to develop and integrate environmental security issues into the TEP in support of national security objectives.

The objectives of ES engagement activities must be to achieve US strategic objectives by minimizing tensions and conflict involved with or resulting from environmental issues, promote prosperity and stability in the region and enhance US security by mitigating or preventing transboundary threats. ES engagement resources should not be used on environmental issues that do not meet the criteria of ES issues.

The skills and techniques required for ES engagement activities are very diverse. Most of the skills required for the successful conduct of ES engagement activities are resident somewhere in the DOD capabilities, whether it be the active duty, Reserve, National Guard or civilian personnel in various agencies and positions throughout the DOD structure. It is imperative to balance the use of DOD resources for ES engagement activities against other engagement activities, as well as contingency

operations and humanitarian assistance missions. The operations tempo of DOD is high and personnel are stretched thin. The additional challenge is finding the individuals or units that are qualified, trained and ready to accomplish these missions. It is important to recognize not only the formal military skills resident in the National Guard and Reserve but also the potentially significant skills and experience they have from their civilian occupations.

There is a great synergy that could be obtained by optimizing a mixture of DOD assets and assets from other U.S. departments and agencies. These other sources could provide individuals trained in the many disciplines that interact in the environmental security arena and resources for the engagement mission. Many of these departments and agencies practice these environmentally related skills on a daily basis and do in fact perform engagement type missions in support of U.S. strategic objectives.

For example, within the Department of State (DOS) the U.S. Agency for International Development (USAID) performs a number of engagement missions throughout the AOR and the world. These focus on numerous environmentally related issues including agriculture, potable water, public health, technology and economic development. USAID provides financial and logistical support to a diverse variety of international and partner nations' Non-Governmental Organizations (NGO's) and Private Volunteer Organizations (PVO's).<sup>35</sup>

A lesser-known example is the activities of the National Center for Environmental Health, part of the Center for Disease Control and Prevention. This Center collaborates with UN agencies, governmental and non-governmental organizations, academic institutions and other US agencies on environmental health in this AOR and throughout the world. They currently have projects focusing on childhood lead poisoning, water sanitation and hygiene, urban health and mega-city development, micronutrient malnutrition and emergency preparedness and response. As part of their efforts they identify and assess current situations, and develop training and action programs to combat these environmental health challenges.<sup>36</sup>

Additionally, depending on the specific objectives, there are US and internationally based NGO's and PVO's that can assist, augment and facilitate specific

engagement missions. Many of these organizations would be receptive to conducting "joint" activities with the military as the military can offer technical and logistical support that is often beyond these organizations' capabilities.

An annual conference to facilitate the integration of non-DOD assets into ES engagement projects should be sponsored by the CINC. DOS could be the cosponsor of such a conference. An intelligence update focused on critical ES issues and a review of regional security objectives should be presented. The descriptions and goals of ES related activities by the various agencies and organizations should be briefed. NGO's/PVO's could be invited to brief their regional activities at part of the conference.

Adequate preparation and mission focus are as critical for ES engagement activities as they are for other critical "high-payoff" military missions. An ES engagement mission that is poorly executed or improperly "targeted" will waste significant resources and may cause long-term detrimental affects for future engagement activities in the nation or region. A thorough intelligence preparation and analysis must be performed to determine what environmental issues are present in each of the four sub-regions. This analysis must include environmental and economic data as well as the traditional military and socio-political situation related to the partner nation(s) and region. This analysis should determine which environmental issues are likely to develop into ES challenges that will affect regional and national security objectives. This analysis should also form the basis for determining what ES engagement activities may mitigate or prevent negative consequences. This data can and should come from a variety of military and civilian, open and classified sources.

Classified sources include the Director of Central Intelligence Environmental Center, National Imagery and Mapping Agency, National Reconnaissance Office, and the Armed Forces Medical Intelligence Center. DOS (embassies, USAID) resources have varying levels of classification, as do those of other federal agencies such as Department of Energy, Department of Agriculture and the Environmental Protection Agency. The DOS has recently established Environmental Hubs. In this AOR they are presently located in Addis Ababa, Ethiopia, Amman, Jordan and Tashkent, Uzbekistan. The mission of these Hubs is to provide information about environmental issues and

concerns, facilitate US assistance, address and coordinate transboundary issues and enhance regional cooperation.<sup>37</sup>

Unclassified resources are too numerous to list and are easily accessible by the internet but some examples include a variety of United Nations programs and data bases, academic and privately funded environmentally oriented research centers. In all cases the accuracy of this open source data must be validated.

The identified and projected ES issues must be assessed in view of the CINC's intent as well as that of the US ambassador to the partner nation. It is imperative that partner nation(s) contribute to the planning process in terms of their concerns, goals and priorities. This concept of partnership cannot be overly emphasized. The development of the ES engagement plan must look at ES issues in terms of criticality, magnitude, affects on the nation/ region and their relationship to US security interests. Additionally, resources must be allocated in a manner that will attain the maximum benefits for the US security objectives. This can be viewed in a manner similar to medical triage; allocating scarce resources to achieve the maximum benefits. There are many environmental issues that are not and will not become ES issues and there are some ES issues that will require vast resources with only limited improvement gains for US security objectives; resources should not be used on these issues.<sup>38</sup> Examples of environmental issues that will not become ES issues might be solid waste dump in the Empty Quarter of Saudi Arabia, an energy plant in central Asia that produces combustion pollutants in excess of U.S. standards or poor water quality in a village in the Horn of Africa. Some ES issues might include the disparity of water quality and quantity between Israel, Jordan and the Palestinians, pollution of the Persian Gulf by oil refineries, and overpopulation and population migration in the Horn of Africa.

The ES priority analysis and planning process could be used as part of the ES engagement process. A recent ES seminar for the international officers at the U.S. Army War College was held in October 1999. Officers from the CENTCOM AOR identified the following critical ES issues:

- Water Resource Management
- Deforestation
- Oil Spills

- Industrial (Refinery) Pollution
- Soil Degradation / Desertification
- Protection of the Marine Environment / Fisheries
- Waste Disposal to include disposal of Hazardous Materials
- Proliferation of Weapons of Mass Destruction
- Overpopulation
- Urbanization

ES engagement missions, as in all engagement missions, require a mutual understanding of goals and objectives by the partner nation(s) and the U.S. This is more complicated regarding ES activities as compared to traditional military training events. Identifying the impediments or threats to successful ES engagement is the first step to mitigating these threats and ensuring that the strategic goals are obtained. At the this ES seminar officers from the AOR also identified impediments to effective ES engagement. These include:

- Environmental Security is a new concept
- Significant variability in terms of economy, technology, type of government within the AOR
- In most countries the military is not a significant participant or is not viewed as a significant part of the environmental solution
- Skepticism and mistrust of US presence and objectives
- Relationship between military and civilian leadership and agencies
- Potential preference for civilian versus military assistance
- Differing national commitment to environmental issues

Communication and education are the keys to prevent these impediments from becoming obstacles to ES engagement activities. Communication must occur early and throughout the engagement process and must take place with key military and civilian leaders. Education must take place at various levels stressing the importance of

environmental and ES issues and their relationship to the long term success, quality of life and stability of the partner nation.

Table 2 is a list of specific, potential ES Engagement Activities. The initial strategy for initiating ES engagement activities must be focused on heightening the environmental awareness and demonstrating the long-term benefits and relevance of environmental involvement to senior military and civilian leaders in the AOR.

### **ES ENGAGEMENT ACTIVITIES**

Educate civilian and military leaders.<sup>39</sup>

- Conduct focused environmental awareness training in their country
- Invite them to military and civilian training conducted in the U.S.
- Invite them to visit U.S. installations to see how DOD integrates environmental issues
- Invite them to see non-DOD agencies at work
- Conduct regionally focused seminars on various environmental issues
- Integrate environmental responsibility in bilateral and multilateral exercises
- Host regional negotiations on environmental issues
- Integrate environmental training in host nations military and civilian development courses

Coordinate and synchronize regional environmental security activities.

- Coordinate a regional conference to identify and discuss regional ES issues.
- Assure U.S. coordination and synchronization for US governmental agencies.
- Coordinate conferences and seminars on a regional and host nation basis.
- Coordinate NGO/PVO conferences, seminars and planning assistance.

Coordinate, synchronize and assist in the planning of internal, environmentally focused conferences and seminars for civilian, military and community leaders.

Provide subject matter experts to the nation or region in support of ES issues in concert with US objectives.

## ES ENGAGEMENT ACTIVITIES

Provide coordination for and training in the application of international environmental agreements and standards.

Encourage inclusion of military and civilian leaders at environmentally focused training and education.

Assist in the development of environmental awareness training for military personnel and the general population.

Identify and perform risk analysis for terrorist, industrial or natural environmental disaster.

Provide assistance to plan and coordinate for initial disaster response to terrorist, industrial or natural environmental disaster.

Provide assistance to plan and coordinate for consequence management of terrorist, industrial or natural environmental disaster.

Train host nation security forces in force protection.

Provide, coordinate and assist in the development of an information management/ network on environmental information, facts meetings etc.

Fish, reef and water protection measures.

Land, water and air assessment techniques and analysis for hazardous materials.

Riverine and inland waterway management, security, development and analysis.

Provide training coordination and assistance about ecosystems and biodiversity knowledge.

Train, coordinate and assist in the development of improved agriculture practices and crop selection.

Provide technical assistance and training in improved water usage for industrial and agricultural uses.

Train, coordinate and assist in the development of improved forestry management and harvesting.

## ES ENGAGEMENT ACTIVITIES

Training activities for junior and mid-level soldiers and leaders.

- Train host nation military and civilian medical systems in detection, analysis and treatment of a variety of environmental threats.
- Train host nation military and civilian personnel to conduct baseline epidemiological studies to detect and analyze adverse environmental affects.
- Train military and civilian security forces in the protection of conservation areas, natural resources and prevention of environmentally focused terrorist threats.
- Provide training, coordination and assistance in land use planning and civil engineering projects.
- Train military and civilian forces in border and coastal security.
- Provide training, coordination and assistance in the design and development of sustainable ranges and training areas.
- Provide training, coordination and assistance in demining and unexploded ordinance detection and disposal.
- Provide training, coordination and assistance in pollution prevention.
- Provide training, coordination and assistance in the remediation of land contaminated by military or industrial activities.
- Train, coordinate and assist in the collection, purification and delivery of water.
- Train, coordinate and assist in the collection, removal and management of industrial waste and sewage.
- Train military and civilian agencies in maritime management operations to include port security, inspection of ships and cargo (for hazardous material), reef and fish management

TABLE 2 ES ENGAGEMENT ACTIVITIES

## CONCLUSIONS

This paper has discussed the relevance and importance of ES issues for U.S. security and regional strategic objectives. Peacetime engagement is the method of achieving regional objectives for all situations short of war. In fact successful engagement will promote regional stability and economic prosperity, enhance quality of life, and achieve U.S. strategic security objectives. ES activities are a valuable focus for engagement activities because of the many direct benefits in the region and indirect contributions to U.S. security. ES engagement activities are also beneficial because of their long term, cost effective, non-threatening nature as compared to traditional military engagement activities. It is always difficult to quantify the cost effectiveness of preventive activities especially in relationship to the environment, however the contrasting cost of consequence management, in any scenario, is extremely high. DOD has the requisite personnel skills and logistic capabilities to perform ES engagement activities unilaterally, or more appropriately, in concert with other government agencies, NGO's and PVO's. Environmental issues that may become ES issues must be identified and prioritized with regard to their affect on U.S. security objectives. A detailed mission analysis must be performed to determine the resources that will be allocated for this ES engagement mission and the appropriate objective or "endpoint". This paper provides a general understanding of and methodology to develop ES engagement activities. The following are specific recommendations to enhance the ES engagement process for the CENTCOM AOR:

Interagency and international cooperation is essential to the engagement process. Processes should be developed between DOS and DOD to enhance and facilitate synchronization if not integration of ES activities. Initial and follow-on annual interagency meetings are essential.

Throughout the CENTCOM AOR engagement activities to heighten general environmental awareness must be conducted for the senior military and civilian leadership. CENTCOM ES concerns include: water quality, usage and distribution; public health issues; hazardous waste and industrial pollution; and agriculture and land management. Another significant concern is the potential use of weapons of mass

destruction (WMD), byproducts and pollution caused by the development of WMD and environmental concerns secondary to the wide range of military activities.

Specific foci for each of the four CENTCOM sub-regions are:

Horn of Africa - Deforestation, Desertification, Public Health, Water Resource Management

Northern Red Sea - Industrial Pollution, Water Resource Management, Urban Development

Arabian Peninsula - Hazardous Waste Disposal, Weapons of Mass Destruction Water Resources, Pollution

South and Central Asia - Baseline Environmental Studies and Assessment, Environmentally Balanced Economic Development.

CENTCOM and the other unified commands have made great strides incorporating the diverse concepts and challenges of Environmental Security into their theater threat analysis, strategy and engagement plans. ES is a new concept that will provide outstanding opportunities for the U.S and a significant focus of engagement activities for the next 20 years. ES engagement is a valuable long-term investment in U.S. regional security objectives as well as the security, economy and health for the citizens of the United States.

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## ENDNOTES

<sup>1</sup> William J. Clinton, A National Security Strategy For A New Century (Washington, D.C.: The White House, October 1998), 13.

<sup>2</sup> Rachel Carson, Silent Spring (Boston: Houghton Mifflin, 1962).

<sup>3</sup> Richard A. Matthew, "Environmental Security: Demystifying the Concept, Clarifying the Stakes," Environmental Change and Security Project 1 (Spring 1995): 14.

<sup>4</sup> Thomas Homer-Dixon, "On the Threshold: Environmental Changes as Causes of Acute Conflict." International Security 16, no. 2 (Fall 1991): 77. 76-116.

<sup>5</sup> Clinton, 1-2,5.

<sup>6</sup> Clinton, 52-53.

<sup>7</sup> "National Military Strategy," linked from Joint Electronic Library Available from <<http://www.dtic.mil/jcs/nms/>>; Internet. Accessed 9 September 1999.

<sup>8</sup> Paul D. Miller, "The Inter-Agency Process: Engaging America's Full National Security Capability" (draft copy), (January 1993) 4: quoted in Kent H. Butts, Environmental Security: A DOD Partnership for Peace (Strategic Studies Institute, USAWC, 25 April 1994), 1.

<sup>9</sup> Brian J. Ohlinger, Peacetime Engagement: A Search for Relevance (Strategic Studies Institute, USAWC, 15 October 1992), 2-3.

<sup>10</sup> Peter H. Gleick, "Water and Conflict: Fresh Water Resources and International Security." International Security 18:1 (1993); quoted in Brian R. Shaw, "When Are Environmental Issues Security Issues?" Environmental Change and Security Project 2 (Spring 1996): 39-44.

<sup>11</sup> Department of Defense, Environmental Security, DoD Directive 4715.1. (Washington, D.C.: U.S. Department of Defense, 24 February 1996), 2-1.

<sup>12</sup> Congress, Senate, Armed Forces Committee. Subcommittee on Readiness and Management Support, Environmental Security In The Next Millenium, 13 April 1999, 1.

<sup>13</sup> Molly Landholm ed., Defining Environmental Security: Implications for the U.S. Army (Army Environmental Institute, AEPI-IFP-1298, December 1998), iv.

<sup>14</sup> Peter H. Gleick, "Environment and Security: The Clear Connection," Bulletin of Atomic Scientists, (April 1991), 19; quoted in James A. Winnefeld and Mary E. Morris, Where Environmental Concerns and Security Strategies Meet: Green Conflict in Asia and the Middle East (Santa Monica, CA.:Rand, 1994), 4.

<sup>15</sup> Richard H. Ullman, "Redefining Security." International Security 8:1 (1983): 129-153; quoted in Shaw, 39-44.

<sup>16</sup> Robert D. Kaplan, "The Coming Anarchy," The Atlantic Monthly 273, no. 2 (1994): 44-76.

<sup>17</sup> Brian R. Shaw, "When Are Environmental Issues Security Issues?" Environmental Change and Security Project 2 (Spring 1996): 40.

<sup>18</sup> Daniel Schwartz and Ashbindu Singh, Environmental Conditions, Resources, and Conflict: An Introductory Overview and Data Collection, (Nairobi, Kenya: United Nations Environment Program, 1999), 12-15.

<sup>19</sup> U.S. Central Command, Shaping the Central region for the 21<sup>st</sup> Century, (MacDill AFB, FL, 1999), 14.

<sup>20</sup> *Ibid.*, 16.

<sup>21</sup> Steve Sternberg, "Earth Welcomes 6 billionth baby with trepidation," USA Today, 11 October 1999, sec. D, p. 5.

<sup>22</sup> Dennis Pirages, "Demographic Change and Ecological Security," Environmental Change and Security Project 3 (Spring 1997): 42.

<sup>23</sup> Kent H. Butts, "The Strategic Importance of Water," Parameters 17 no. 1 (Spring 1997): 73.

<sup>24</sup> *Ibid.*, 65.

<sup>25</sup> Sophie Chou, Ross Bezark and Anne Wilson, "Water Scarcity in River Basins as a Security Problem," Environmental Change and Security Project 3 (Spring 1997): 97.

<sup>26</sup> *Ibid.*, 98.

<sup>27</sup> Miriam R. Lowi, "Political and Institutional Responses to Transboundary Water Disputes in the Middle East," Environmental Change and Security Project 2 (Spring 1996): 6.

<sup>28</sup> *Ibid.*, 5-8.

<sup>29</sup> Kent H. Butts, Environmental Security: A DOD Partnership for Peace (Strategic Studies Institute, USAWC, 25 April 1994), 14-15.

<sup>30</sup> Sandra Postel, "Dividing the Waters: Food security, Ecosystem Health, and the New Politics of Scarcity." Worldwatch Paper 132 (September 1996): 73: quoted in Chou, 101.

<sup>31</sup> Rohit Burman, Kelly Kirschner and Elissa McCarter, "Infectious Disease as a Global Security Threat," Environmental Change and Security Project 3 (Spring 1997): 66-81.

<sup>32</sup> Dennis Pirages, "Microsecurity: Disease Organisms and Human Well-Being," Environmental Change and Security Project 2 (Spring 1996): 9-14.

<sup>33</sup> James A. Winnefeld and Mary E. Morriss, Where Environmental Concerns and Security Strategies Meet: Green Conflict in Asia and the Middle East (Santa Monica, CA.:Rand, 1994), 27,41.

<sup>34</sup> U.S. European Command, Strategy of Readiness and Engagement, (Stuttgart, Germany, April 1998), 10.

<sup>35</sup> "Asia/Near East, Greater Horn of Africa Initiative, Central/Eastern Europe" Linked from U.S. Agency for International Development, available from <http://www.info.usaid.gov/regions/>; Internet; Accessed 20 September 1999.

<sup>36</sup> William Parra, Deputy Director, National Center for Environmental Health, CDC, interviewed by author, 7 October 1999, Atlanta, GA.

<sup>37</sup> The ideas in this paragraph are based on remarks made by speakers at the International Fellows Environmental Security Seminar, U.S. Army War College, 20-21 October 1999 and the Environmental Security Intelligence and Information Workshop, U.S. Central Command, 18-20 January 2000.

<sup>38</sup> Brian R. Shaw, "When Are Environmental Issues Security Issues?" Environmental Change and Security Project 2 (Spring 1996): 39-44.

<sup>39</sup> The activities presented in this table were developed at a CENTCOM ES Annex working group meeting consisting of Dr. Kent Butts, LTC Don Young, LCDR Paul Beckwith and myself, September 1999.



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