Environmental Management Systems, Reliability Management, and Vulnerability Assessments: Potential within Contemporary Security Settings

John J. Barich, III, and Katarina Mahutova
U.S. Environmental Protection Agency

INTRODUCTION

The U.S. Environmental Protection Agency has defined environmental security as “a process whereby solutions to environmental problems contribute to national security objectives.” There are many non-military threats to national security, and several of these are associated with environmental conditions or competition for natural resources. Environmental stress is viewed as deriving from scarcity and resource degradation. It is most easily understood from the perspective of constraints, or “encroachment.” Conflict and environmental stress are shown to be related in complex ways. And success in managing conflict is one aspect of overall national security.

Three complementary management tools, the Environmental Management System (EMS), Vulnerability Assessment/Consequence Management (VA/CM), and Reliability Management/Failure Analysis (RM/FA) are available to assist environmental managers in assuring that environmental stress as a factor in producing or sustaining conflict is minimized.

DISCUSSION

Environmental Stress and Conflict

Many non-military threats to national security are now recognized. A partial list adapted from NATO includes:

- Environmental mismanagement
- Natural resource depletion
- Overpopulation
- Environmental consequences of the Cold War
- Economic decline
- Territorial disputes
- International terrorism
Certain of these threats are directly related to the environment, e.g., environmental mismanagement and environmental consequences of the Cold War. For some, the connection is easily made, e.g., natural resource depletion. For others, the environment may be a factor. How is overpopulation related to the limited ability of environmental resources to sustain human populations? Is economic decline traceable to a lack of markets, a trained workforce, business and financial infrastructure (including capital formation capacity,) or is it traceable in part to environmental resource scarcity? How often are environmental resources a factor in territorial disputes? And is international terrorism a matter for the military and police, or do the environmental threats posed by certain of the tools of terrorists (chemical, biological agents, “dirty bombs,”) make terrorism of primary concern to environmental managers?

Most of these non-military threats are caused to some extent by resource constraints. Constraints can be viewed as “encroachment,” as illustrated in Figure 1, adapted from the U.S. Air Force:

![Figure 1. Resource Constraints and Management (Encroachment)](image)

A resource base can be either renewable, non-renewable, or a combination of each. Whereas environmental stress and competition both tend to diminish a renewable or non-renewable resource base, there is some potential to manage environmental stress in a beneficial manner. Operations (such as training) or financial management strategies can either diminish the resource, enhance it (in the case of renewables,) or alter the depletion rate (in the case of non-renewables.) How this occurs is the subject of risk assessment/risk management, i.e., the application of the risk paradigm.