



**STRATEGY  
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**MAINTAINING A TRAINED AND READY ARMY FROM AN  
ENVIRONMENTAL PERSPECTIVE**

**BY**

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FROM AN ENVIRONMENTAL PERSPECTIVE**

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## ABSTRACT

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Environmental factors strike at the very heart of the Army's training and readiness mission. As proud environmental stewards, the Army strives to minimize the long-term effects and permanent damage to all facets of the environment that may result of pursuing this effort. Since it is recognized that environmental issues can lead to serious training restrictions and adversely affect missions, an overall environmental strategy must be fully developed and integrated in how the Army conducts its business in peace and war.

Additionally, there is increased concern among leaders and certainly evolving challenges that contribute to environmental interests. The devastation that occurred on September 11<sup>th</sup>, 2001 demonstrates that intentional destruction of urban infrastructure results in environmental and health related problems. Ecological terrorism affected the health of US forces in the Persian Gulf War and the current possibilities concerning the environment are endless.

This paper examines the responsibilities of commanders and leaders in achieving environmental compliance and discusses some of the challenges in fulfilling this duty. It provides a historical perspective as well as the governing federal and military environmental laws and regulations and emphasizes the need for training when integrating environmental considerations in Army doctrine and decision-making.



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## **MAINTAINING A TRAINED AND READY ARMY FROM AN ENVIRONMENTAL PERSPECTIVE**

The primary mission of the United States Armed Forces is to win this Nation's wars through the application of overwhelming combat power. This is done by equipping soldiers with skillful knowledge and providing them the opportunity to train with the best weapons, under the most realistic conditions. In the United States, the Department of Defense (DOD) is the largest industrial organization and the second largest land manager possessing over 25 million acres of land with diverse ecosystems and more than 300 listed threatened and endangered species.<sup>1</sup> Within this massive acreage, 100 major Army installations exist on over 12 million acres of this land with nearly 90% of this land being used for training and weapons testing. Unfortunately, military activities, including training for war, can have negative impacts on the land and its natural resources. As proud environmental stewards, the Army strives to minimize the long-term effects and permanent damage to all facets of the environment.

It was not that long ago that the environment and all related issues were regarded as an obstacle to the military's ability to accomplish its vital missions. Now is it understood that the environment is a major factor when considering total life-cycle costs and can influence overall mission success. In February 2002, General John M. Keane, Vice Chief of Staff, released a memorandum declaring installation environmental compliance programs of management strategy, program integration, and environmental training programs required emphasis at all levels of leadership.<sup>2</sup>

Without a doubt, environmental factors strike at the very heart of security and military support initiatives. Even the National Security Policy attempts to examine the effects of environmental degradation from a global perspective. It is evident that the national security of the United States and its relationship with allies are directly affected by decisions involving the environment.

Similarly, the United States' intent on an "environmental strategy" has an impact on our overall defense strategy in that the U.S. is capable of influencing regional stability and promoting our interests as well as directly influencing the health of U.S. forces and respective civilian communities. DOD's current environmental programs address such elements as technology, pollution prevention, compliance, conservation, cleanup, and force protection. The environmental strategy must ultimately result in protecting the health, safety and natural resources for soldiers, their families and the surrounding

communities in which they live and train. The environment must be integrated in how the Army conducts its business in peace and war.

The Army has many doctrines that consider the environment an important factor in military readiness. The current United States Army Vision statement clearly indicates that the Army will integrate environmental values into its mission to sustain readiness, improve the soldier's quality of life, strengthen community relationships, and provide sound stewardship of its resources.<sup>3</sup> However, without understanding what is meant by the term "integrate environmental values", determining who is specifically responsible for meeting this requirement and knowing when the goal has been met becomes difficult.

The intent of this paper is to examine the respective components in achieving environmental compliance and discussing some of the challenges to fulfilling this objective. A historical perspective of the governing federal and military environmental laws is presented along with an emphasis on the need for environmental considerations to be integrated in Army doctrine and the decision making process when contemplating training and mission requirements. This research examines the planning, training and operational opportunities for commanders and leaders to incorporate the environment into mission activities. This research emphasizes the need for environmental considerations to be integrated in Army doctrine and the decision making process when contemplating training and mission requirements. An awareness and ultimately, compliance of the environmental laws will have favorable impacts on mission readiness, training of the forces, quality of life for soldiers and citizens, community relationships and lead to a reduction of penalties and fines. The author intends to make recommendations for achieving compliance based on an analysis of environmental issues affecting the Armed Forces.

## **OVERVIEW**

The health of the environment during and after military operations is the ultimate responsibility of all military leaders. Specifically, Commanders face the challenge of adhering to environmental laws in garrison as well as field situations. These challenges are exacerbated by mission limitations that often arise as a result of leaders lack of training, knowledge of environmental laws and defined roles. To improve efforts to understanding the implication of environmental factors and the effects on security and military support initiatives, military leaders must be aware of applicable environmental

laws. It is vital to know how these governing rules affect planning, training and operational assessments and initiative, and should be factored into plans of execution.

The Army has received numerous notices of violations due to non-compliance of environmental requirements. Many of these penalties could have been prevented if personnel were aware of the enforcing regulations. In a recent report, the Department of the Army Inspector General (DAIG) inspected twelve installations between January and September 2001. The results indicated that only 33% of garrison commanders had little knowledge of day to day environmental issues; 75% of installations did not comply with the regulatory requirement to establish Environmental Quality Control Committees; 25% of installations did not have an Installation Corrective Action Plan to monitor and track the resolution of environmental deficiencies; 58% did not have formal or written environmental goals and objectives; 58% of installations did not include environmental stewardship as a commander's vision or goal; 75% indicated their personnel were not aware of environmental policies; 83% of installations were not conducting environmental inspections; only 17% had a functional method of tracking hazardous materials and waste; 67% had environmental training aids available; 42% conducted environmental assessment training; 42% did not have established Environmental Quality Control Committees and only 33% of installations conducted meetings concerning the environment at least quarterly. <sup>4</sup>

The DAIG report cited that an inadequate command emphasis, environmental assessment training and inability to incorporate compliance requirements into Organizational Inspection Programs contributed to a lack of environmental awareness at all levels. Most personnel were unaware of their environmental responsibility and even thought environmental ethics was the responsibility of compliance officers or environmental agencies like the EPA. This responsibility directly impacts readiness and is applicable to all personnel.

## **HISTORICAL INFLUENCES**

The idea of including environmental considerations in Army missions has progressed through several actions facilitating a positive transformation within the realm of environmental stewardship. It was not until the 1970s that legislation was passed to regulate and enforce environmental practices. Before then, the military operated without any national environmental legislation. <sup>5</sup> Some examples of major legislation which

were enacted include the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Clean Air Act (CAA), the Clean Water Act (CWA) and the Resources Conservation and Recovery Act (RCRA) which was later revised in 1992 to hold Federal agencies liable for non-compliance.

A major platform to launch the military's interest in the environment was the release of a National Environmental Management Policy in October 1999. The report stated the United States wanted to be the world leader in addressing environmental issues and that the Department of Defense would be the Federal leader in compliance and protection to support this initiative. In addition, in March 2001, as the Assistant Chief of Staff for Installation Management, Major General R.L. Van Antwerp addressed the Subcommittee on Readiness and Management Support of the Committee on Armed Services of the Senate on "Encroachment Issues Having a Potentially Adverse Impact on Military Readiness." He stated that environmental issues were clearly affecting the method of training soldiers and the Army was seeking new management approaches in order to sustain training and readiness.

This prompted an interest in some specific environmental issues unique to the military. Examples of these issues affecting the military included land use from a residential and training perspective as it applies to quality of life and readiness; protection of endangered species residing or growing on installations; unexploded ordnance in all areas of use; frequency demand and bandwidth on ranges; sustainability of the maritime environment; demand for air and land space for vital weapons firing; ground maneuver and aviation support; protection of air quality; abatement of airborne noise and urban growth. <sup>6</sup>

In December 1992, the Director of Environmental Programs and the Director of Training at Headquarters, Department of the Army (HQDA), signed an Army Environmental Master Plan (AETMP). This document provided a strategy that defined environmental training requirements. It also institutionalized environmental training for all military and civilians at all levels and environmental awareness became integrated into leadership training. Organizational relationships were further established that implemented and integrated responsibilities. Training requirements for the forces were identified and methods to evaluate training programs were developed. Additionally, services to support training awareness were created and program resources were identified. <sup>7</sup>

In November 1993, the Army's senior leaders created the Army's Senior Environmental Leadership Conference (SELC), which provided further guidance from the most senior perspective. Their recommendations included the development of an environmental "train-the trainers" program for units and installations and incorporating environmental training elements into leadership courses. Other recommendations included the development of installation environmental positions to assist leaders and the development of environmental centers of excellence. The guidance was based the Army's environmental program pillars of compliance, pollution prevention, conservation of natural and cultural resources, and restoration. It resulted in a concept that supports the environmental program through the proper environmental training of soldiers and civilians, the development of the appropriate technology to reduce environment hazards, the achievement of cost avoidance through reduction of penalties and fines, the enhancement of realistic training and the contribution towards the preservation of ecosystems.

Beginning in 1994, the United States Army Engineer School (USAES) was the Training and Doctrine Command's (TRADOC) executive agent for environmental considerations as it applied to training. In March 2000, the Senior Executive Leadership Conference (SELC) hosted by USAES developed the Army Environmental Campaign Plan and the Operational Directive. Later, the Vice Chief of Staff of the Army approved the plan and directive which designated USAES as the proponent for integration of environmental considerations and their efforts focused on all aspects of doctrine, training, leader development, organizational design, material requirements and soldier/civilian support (DTLOMS). Overall, the mission and efforts of TRADOC have facilitated the integration of the environmental elements into Army training, as they are currently known. TRADOC developed the Army's doctrine for training the force in environmental issues through the U.S. Army Engineer School. Additionally, they are the executive agent for the development and integration of environmental doctrine and training products for tactical units and field operations.

Military environmental initiatives represent a significant and long-term investment in National defense and should be in the forefront when examining resource requirements. It is recognized there are enormous costs attributed to resourcing environmental compliance as it applies to sustainment and readiness. While recognition and compliance remain great challenges, the elements of environmental law, training preparedness and operational compliance remains equally significant. The Army has

made significant progress in integrating the philosophy of sound stewardship in all facets of the pursuit of environmental compliance. <sup>8</sup>

Fort Polk, in Louisiana, created an 'Environmental Guidebook' for all commanders that are distributed at the Joint Readiness Training Center. The guidebook states that, "Regardless of the sanctions of noncompliance, meeting our legal responsibilities for environmental issues is just the RIGHT THING TO DO". Compliance helps preserve lands and resources for long-term use in support of military missions. Moreover, it also provides a safer and more protective working atmosphere for personnel in which to conducting training and further enhances the natural environment for quality of life issues and recreation.<sup>9</sup>

## **GOVERNING ENVIRONMENTAL LAWS AND REGULATIONS**

Since the Department of Defense became the steward of the environment, the Army's impending actions were influenced by the impact of environmental governing laws. All DOD employees to include soldiers are bound by federal, state, local and host nation environmental laws in the accomplishment of mission and training requirements.<sup>10</sup> Federal laws as they apply to the environment are a result of Congressional actions and are enforced by agencies such as the Environmental Protection Agency (EPA). The Army adheres to state and local laws, whichever are more stringent and are also subject to military regulations as well. Environmental compliance can be complicated as well cumbersome as indicated by the numerous regulatory guidelines indicated below.

Each governing act has a specific purpose as it applies to the environment. For example, the National Environmental Policy Act (NEPA) requires the Army determine the environmental impact and consequences of an Army mission or training activity. The Resource Conservation and Recovery Act (RCRA) stipulate how the Army will handle hazardous materiel and waste. The Clean Water Act (CWA) addresses how facilities will dispose of pollutants into the waters. The Clean Air Act (CAA) addresses all aspects of air pollution reduction. The National Historic Preservation Act (NHPA) concerns itself with the preservation of historical properties and sites on Army installations. The Endangered Species Act (ESA) protects threatened and endangered species. The Federal Facilities Compliance Act (FFCA) supports the EPA and authorizes inspections and the appropriate resulting penalties at Army installations and the Noise Control Act

(NCA) ensures environmental noise control. In essence, all of these acts are applicable to military as well as civilian communities.

From a global perspective, issues concerning the environment can be extremely complex as identified earlier since environmental conflict might be based on ethno-political conflicts, issues from an internal, cross-border or demographic migration, international resource conflicts and other issues due to fundamental global environmental changes.<sup>11</sup> Internationally, laws and treaties also bind U.S. military forces such as the Biological Diversity Convention; International Tropical Timber Agreement; the International Convention for the Prevention of Pollution from Ships; the Convention on International Trade in Endangered Species; the Basel Convention which focuses on hazardous waste; the NOX Protocol which addresses air pollution; the London Dumping Convention focusing on marine pollution from ships dumping wastes generated on land; the Montreal Protocol which addresses ozone depleting substances and Kyoto Accord which focuses on greenhouse gases.

Army Regulations (ARs) applicable to environmental responsibilities include (AR) 200-1, which addresses the environmental program; AR 200-2, which focuses on considerations for planning and decision making purposes; AR 200-3, which provides for the management of natural resources and threatened and endangered species; AR 200-4, which addresses the cultural-resource program; AR 200-5, which focuses on pest control activities; AR 350-4, which establishes procedures to obtain sustainable land use; AR 420-49, which specifies hazardous waste and solid waste management and AR 420-76, which provides procedures concerning pest control.

Other federal laws that are applicable to the environment include the Archaeological Resources Protection Act (ARPA) of 1979 which requires a permit for excavating archaeological resources on federal lands; the Clean Air Act (CAA) of 1970 which requires prevention of air pollution from stationary power sources; the Clean Water Act (CWA) of 1972 which was amended in 1977 and regulates discharges in the water; the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 which regulates past releases of hazardous materials into the environment. Other relevant acts include the Emergency Planning and Community Right To Know Act (EPCRA) of 1986 which provides a mechanism for informing local populations about possible chemical hazards in the community; the Endangered Species Act (ESA) of 1973 which protects threatened and endangered plants and animals; the Federal Facilities Compliance Act (FFCA) of 1992 which subjects all DOD employees to

personal environmental liabilities; the Federal Insecticide Fungicide and Rodenticide Act (FIFRA) of 1972 which requires licensing pesticide products by the EPA; the Federal Hazardous Materials Transportation Law (Federal HAZEMAT Law) of 1988 which authorizes the U.S. Department of Transportation to issue interstate and intrastate regulations; the Marine Mammal Protection Act (MMPA) of 1972 which provides protection for marine mammals; the Military Munitions Rule of 1997 which identifies when conventional and chemical munitions become hazardous waste; the National Environmental Policy Act (NEPA) of 1969 which requires federal agencies to consider environmental impacts on all aspects of planning and training. And finally, the National Historic Preservation Act (NHPA) of 1966 which considers impact on historical sites on military installations; the Native American Graves Reparation Act (NAGPRA) of 1990 which ensures the protection of Native American cultural items on military installations; the Noise Control Act (NCA) of 1972 which promotes an environment free from noise; the Oil Pollution Act (OPA) of 1990 which establishes a standard for measuring natural resource damage; the Quiet Communities Act (QCA) of 1978 which allows local communities to develop ordinances controlling unnecessary noise; the Resource Conservation and Recovery Act (RCRA) of 1976 which establishes standards for hazardous waste disposal; the Safe Drinking Water Act (SDWA) of 1974 which regulates drinking water quality; the Sikes Act (SA) of 1985 which allows military departments to provide services for fish and wildlife management, and the Toxic Substances Control Act (TSCA) of 1976 which places restrictions on chemical substances.

Additionally, there are applicable Executive Orders affecting environmental management such as the EO 11987 which prevents the introduction of exotic species; EO 11988 addresses floodplain management; EO 11990 addresses protection of wetlands; EO 12088 provides for pollution control compliance; EO 12114 addresses environmental effects abroad; EO 12580 provides national and regional response teams; EO 12856 addresses compliance issues with right-to-know laws and pollution prevention requirements; EO12898 focuses on environmental justice in minority populations; EO 13007 provides direction to Native American sacred sites, and the EO 13101 incorporates waste prevention and recycling into daily operations.

The implications for non-compliance are significant. For example, it can be costly in dollars and resources as penalties and fines imposed by local, state and federal authorities can be prohibitive. Additionally, non-compliance creates a negative image in the minds of citizens and leaders in the public, local communities, and regulators

sectors. This negative perception can impede programs and ultimately progress. It can also result in formal civil and/or criminal sanctions may be imposed upon the Army and/or individuals who knew or should have known of environmental responsibilities that weren't met in accordance with applicable laws.<sup>12</sup> And lastly, it can affect the health and welfare of any community subjected to the neglect imposed on the environment.

## **COMPLIANCE AND ENVIRONMENTAL SECURITY**

Environmental security is defined as the environmental viability of preventing or repairing military damage to the environment; preventing or responding to environmentally caused conflicts, and protecting the environment due to moral value of the environment itself.<sup>13</sup> The Department of Defense's interpretation of environmental security is ensuring environmentally responsible action by military units; ensuring adequate access to air, land and sea resources; protecting our military war-fighting assets; understanding the military role in a peace and war time situation and ensuring defense-related environmental concerns are considered during the development of national security.<sup>14</sup> In support of these actions, the Department of Defense under the current Administration has now combined the installations and environment offices under the Assistant Secretary of the Army for Installation and Environment.

In order to understand the overall impact environmental security has on our military, one must understand the relationship of the environment to our national security. In 1991, President Bush redefined the national security policy to include the sustainability and environmental security of the planet.<sup>15</sup> Later, President Clinton included environmental security issues into foreign policymaking. These efforts resulted in the creation of a directorate for Global Environmental Affairs at the National Security Council, an Office of the Deputy Under Secretary of Defense for Environmental Security, an office of the Under Secretary of State for Global Affairs and the post of National Intelligence Council.<sup>16</sup>

Environmental security stressors have been the precursors to violent conflicts in countries such as Rwanda and Haiti. These conflicts were precipitated because of environmentally based reasons such as growing populations, scarcity of resources and significant degradation from environmental assets affecting ecosystems that could not handle the increased demands. In situations such as these, populations tend to migrate to neighboring nations that are in a better state of affairs thus resulting in an aggravation

of tensions and political hardships between the countries. The results of environmental security conflicts may result in weaken governments and ultimately force citizens to make demands of their leadership resulting in national instability and have worldwide consequences.

Environmental protection must be viewed as an integral part of environmental security as it relates to national security. The United States must be aware and sensitive to the possibility that environmental issues or degradation may threaten our interests in regions of strategic importance. The ability to sustain readiness depends on our capabilities abroad and power projection platforms in friendly countries. As such, environmental protection can be translated into military forces being directly involved because they actively demonstrate leadership at the national and international level when conducting of their mission. Facets of the environment such as air, land and water usage are critical for military training, missions and personnel well being. Additionally, this sets the stage for other militaries of the world to support and promote an environmentally sustainable behavior and to practice good stewardship in a democratic environment when political, social, economic instability and conflict can be directly influenced by environmental protection.<sup>17</sup>

The U.S. intelligence community is fully aware of how environmental indicators can relate or predict potential conflict, violence or even humanitarian disasters abroad. These indicators are revealed as adequacy of food production, availability of water supply, a population's demand for food and water and/or the disease prevalence and occurrence. To illustrate, if food is unavailable such as in Somalia in 1993, due to environmental degradation, this could indicate a declining nation state requiring U.S. military assistance and intervention. Wars have erupted as a result of scarcity of water in a region, a progressive decline in standards of living due to poverty and deprivation of one population to another, and an overwhelming pollution migration from one border to another or nations exerting power for gain over another.<sup>18</sup>

National security is affected by the degradation of the environment when mass migration of populations lead to starvation, disease and civil unrest and then the use of military forces is required to resolve these international issues.<sup>19</sup> Overall risk assessments from the environmental perspective can assist in the determination of whether these issues will ultimately have an impact on our national security.

Environmental hazards that might influence the effectiveness of deployed forces include endemic insect or rodent-borne diseases such as malaria or dengue fever,

pollution from air, soil or water and climate issues such as extreme cold, heat or altitude. Military analysts have used retrospective analysis on various conflicts to develop theories and models to better understand and plan for the environmental factors that contribute to an operation, environmental degradation, and resulting impacts on forces and civilians. Another application for environmental analysis is disease prevention. Data collection provides for the opportunity to analyze and predict diseases as they apply to forces, food and water sources.<sup>20</sup>

While addressing the formal military environmental security guidelines of the United Nations doctrine in August 1999, the Secretary-General stated that United Nations forces are prohibited from employing methods of warfare which may cause superfluous injury or unnecessary suffering or which may be expected to cause widespread long-term and severe damage to the natural environment. This enforces the United Nations' concern for environmental security due nations acting independently but affecting the environment. In support of this environmental stewardship notion, the International Criminal Court's charter of the Rome statute defines war crimes related to the environment as widespread, long term, and causing severe damage to the natural environment.

It is interesting to note that the American Council for The United Nations University, which is a non-profit non-governmental office, examined the state of the future in the Millennium Project. This report verifies global challenges confronting us today, with 6 being environmentally related.<sup>21</sup> These include: environmental threats being directly related to military environmental security concerns; poverty as it relates to the growing gap between the rich and poor; the disposal of hazardous waste and toxic wastes; the new, re-emergent and drug resistant diseases; forest fires; industrial development; human migration into hazardous environments; deforestation; salinization; water scarcity and pollution; food production; natural disasters; oil spills and pollution; spillage from weapon stockpiles; effects of war; nuclear plant accidents or tests; radioactive waste spillage and management. This list represents about half of the potential global environment threats and is certainly not complete.

The participants of the Millennium Project also suggest that the military be involved in cleaning up military facilities after closure. This effect will prevent or repair military-caused environmental damage, protect military personnel, deter military aggression from environmental degradation, and provide military assistance in emergency situations.

The suggestions lifts the concept of environmental security to a new level of military responsibility.

## **TRAINING OPPORTUNITIES**

The key to achieving successful results in military operations begins with proper training of all personnel in classrooms as well as in the field. Moreover, this training should be repeated periodically to ensure what is taught is current, applicable and retained.<sup>22</sup> General Keane stated "Unless they are addressed in a proactive manner, environmental issues can lead to serious training restrictions and adverse mission impact."<sup>23</sup> Environmental considerations should not be separate or distinguishable and be an integral part of our tactics, techniques and procedures of military operations. Efforts to address the environmental will enhance tactical operations and issues of force protection and ultimately risk management considerations of the fighting force.

The Under Secretary of Defense for Personnel and Readiness is responsible for providing an overall review of military training programs and the Joint Staff is responsible for joint training. The Commanders in Chief are responsible for determining training requirements within their area of operations and the Services are responsible for training their specific forces. From an environmental training perspective, TRADOC designated by the U.S. Army Engineer School as the Executive Agent in 1993 for the development and integration of environmental doctrine. The plan developed also standardized environmental task-based training through intense coordination with Department of the Army staffs, TRADOC and other service schools.<sup>24</sup>

The environmental elements should be integrated into operational concepts and Army training doctrine. The use of environmental training tasks, conditions and standards facilitates this integration into the total Army training system. Without a doubt, leaders must be trained and educated in accordance with their responsibilities concerning the environment and use the military decision-making process to ensure this integration into their organizations. Ultimately this will translate into soldiers at all levels having a new sense of environmental ethics, stewardship and attitude.

This notion is necessary as indicated by the reality that the majority of training exercises in recent years were really designed to represent a presence or access to strategic areas thus indicating full mission preparation with all the resulting effects on the environment. From a retrospective view, the Joint Universal Lessons Learned (JULL)

reports maintained at TRADOC is a useful tool in improving training preparation from an environmental perspective for future planning of training exercises or actual deployments.<sup>25</sup>

The U.S. Joint Forces Command Joint Warfighting Center in Virginia is responsible for the development of joint training and exercise policies and procedures. Their products provide the foundation for the Army's efforts and are used intensely by TRADOC. This command assists the Chairman of the Joint Chiefs of Staff, Combatant Commanders and Service Chiefs by formulating the Joint Training Policy and System through the Unified Command Plan (UCP). The UCP specifies that the United States Joint Forces Command develop the operating system that directly supports the distributed joint training requirements of the Joint Task Forces. Further, the J7 is the lead staff for the collection of the Joint Advanced Distributed Learning data to increase use of internet training for joint training exercises and to support the development of military war fighting doctrine into the 21<sup>st</sup> Century.<sup>26</sup>

It is imperative that supporting staff and agencies to include engineers, medical personnel and Service specific training and doctrine command personnel address environmental issues. To support this effort, guidance is available from the Joint Training Policy (CJCSI 3500.01), of 1 July 1997 which provides Chairman Joint Chiefs of Staff (CJCS) policy guidance and addresses multinational and interagency operations. The Joint Training Master Plan 2000 (CJCSI 3500.02B), of 1 May 1998 that provides Chairman of the Joint Chiefs of Staff guidance to the combatant commands and Services for planning and conducting joint training and exercises. Additionally, the Joint Training Manual (CJCSM 3500.03), of 6 April 1998 which provides guidance for planning and conducting joint training through the Joint Training System as specified in the Joint Training Policy Instruction. Finally, the Joint Training Master Plan, the Universal Joint Task List, of 13 September 1996 which addresses conducting, assessing and evaluation joint and multinational training.

It is the intent of readiness training centers such as the Joint Readiness and Training Center (JRTC) at Fort Polk, Louisiana to conduct training within standards while minimizing an adverse impact to the environment. Trainers attempt to maximize realistic and intensive live field training to enhance necessary war fighting readiness. As such, it is the replication of realistic war fighting scenarios that necessitates increased land use to accommodate the increased requirements for maneuver space and munitions impacts areas. For example, the Army's interim brigade combat teams (IBCT) require a tactical

maneuver doctrine that requires increased land space for training purposes. As in a field environment, Garrison areas also have environmental impact considerations which include consideration of solid waste disposal, non-hazardous waste disposal, used oil disposal, wastewater disposal, air emissions controls, polychlorinated biphenyls monitoring, asbestos abatement, radon detection, lead-based paint management, drinking water purification and natural and cultural resource awareness.

There are some concerns to consider that specifically relates to a field training environment. They include archaeological and historical preservation, air and noise emission control, ecosystem protection, abandonment of materials, erosion control, protection of protected species of animals and birds, solid hazardous and non-hazardous material/waste management, medical waste disposal, human waste disposal, solid waste disposal, spill prevention, gray-water management, fire control, land management, wash racks management, recycling program, accumulation site management and open burning. Commanders and leaders must be aware of how these issues affect the environment and be able to comply with applicable laws.

Typically, the military will seek remote locations in which to conduct realistic training. Recently these efforts have become complicate due to an increase of civilian residential and commercial development and growth near installations. This has caused a tremendous public awareness of military encroachment, safety and pollution issues. The goal of trainers and commanders is to find harmony in meeting military requirements to train in accordance with mission standards and still be good environmental stewards within the local communities located near training areas. The Installation Environmental Quality Control Committees are the conduit to facilitate the required planning, executing and monitoring of environmental programs.

It is imperative that adequate environmental planning occurs early when planning for training opportunities. This is necessary in identifying potential problems through initial environmental impact assessments of training opportunities and to assist in avoiding potentially controversial issues while also helping to focus efforts on meeting mission requirements and community needs. Leaders and planners should be aware of the potential consequences of their decisions as it applies to regulatory compliance as well. Additionally, all aspects of environmental element consideration should also be integrated into the overall decision making and planning of operational plans.

When considering impact concerns, units may use an environmental checklist that addresses specific actions such as vehicle maintenance, weapon use, nuclear,

biological and chemical maintenance, supply, storage and transportation of hazardous materiel, refueling activities, field sanitation and field mess activities, maneuver-damage control; field recovery of waste and materiel and weapons training and demolition activities.

Specifically, the concept of DTLOM which represents doctrine, training, leader development, organizational design, material requirements and soldier/civilian support products, assists by focusing on the development of doctrine within environmental considerations. DTLOM is factored into operational concepts, plans and execution as well as in developing and conducting training exercises to meet environmental compliance. It can also be used when integrating environmental considerations into tasks, conditions and standards; developing and training leaders in environmental risk assessment; facilitating effective stewardship and decision making processes; organizing and identifying the appropriate staffing and equipping organizations to effectively respond to environmental issues and procurement.

Additionally, the intent of integrating DTLOM is to incorporate environmental considerations and lessons learned from previous environmental experiences into the multiple facets of appropriate Army and Joint doctrine publications and references. It facilitates an environmental integration strategy by training military and civilian personnel to perform the environmental tasks in support of job performance while developing military and civilian leaders who understand their environmental responsibilities. It also supports incorporate of the considerations into operational planning and decision-making while designing organizations with a maximum level of environmental expertise and skills to support operational requirements and comply with applicable laws and regulations. Ultimately, this system instills an environmental ethic and awareness in soldiers and civilians that supports the Army's environmental vision and enhances the quality of life and community relations. Similarly, installation sustainability and force deployment from the Forces Command (FORSCOM) perspective seeks to maintain an optimal level of readiness and environmental quality for soldiers, their families and the community for the present as well as future generations.

## OPERATIONAL CONSIDERATIONS

The Army through the Training and Doctrine Command designated the U.S. Army Engineer School at Fort Leonard Wood, Missouri to be the executive agent for the development of military environmental training material and curriculum. As such, they have compiled training techniques and procedures from the field for use by units deploying to various joint operations such as: Operation Joint Endeavor, Operation Joint Guard and Operation Joint Forge in Bosnia-Herzegovina. The curriculum has been divided into phases of force protection that included aspects of training, mobilization, deployment, operations, redeployment and demobilization. These lessons can be useful and tailored to accommodate future deployments.

Some lessons learned from environmental issues have proven to be useful in subsequent deployment preparation.<sup>27</sup> These include using the correct tactical application for military environmental protection; recognizing the high cost of hazardous waste removal and charges against training funds; stressing environmental stewardship is every leader's and soldier's responsibility; integrating environmental considerations in OPLANs/OPORDs; producing standing operating procedures exist at all levels; and educating the entire staff on all environmental laws and regulations. Other lessons include ensuring environmental stewardship is stressed from the top down; identifying site selections early and with good risk management; ensuring spill response contracts and plans are prepared before deployment; integrating spill response duties into the hazardous waste management program; actively involving the preventive medicine detachment in monitoring and sampling; seeking host nation environmental support and becoming aware of differing standards; conducting an initial environmental baseline survey; designing and positioning base camps based on environmental considerations; incorporating spill materials in deployment inventory; preparing to handle field sanitation requirements; determining base camp requirements are met by existing assets or created; preparing for hazardous waste removal; providing soldier safety and protection; and preparing for base camp transfer and closures and assessments in the consideration of legal and health issues.

## RECOMMENDATIONS

Installation and master planners should be included in future plans from an environmental perspective. In order to have a successful program within the Army, a formal National land use strategy based on a regional and in partnership with the civilian community and agencies must be developed and staff functions should be consolidated and aligned with the regional realignment. The development of environmental strategies must support long-term mission sustainment and the strategies should include goals and objectives of their respective installation and mission. Without a doubt, responsible leaders should be held accountable for environmental stewardship and as such they should receive appropriate training and education and results should be reflected in evaluations of mission performance and accomplishment.

Military leaders should partner with public entities and pursue a mutual effort to achieve a similar goal towards sustainability to successfully meet mission requirements while maintaining the environment and supporting the public. To meet the requirements of environmental sustainment while being good stewards, demands must be identified and the military mission and the public all considered simultaneously. Environmental sustainment prudently supports good stewardship and facilitates successful future mission requirements while accommodating the military mission and the public, or at least identifying why the requirements cannot be met.

All efforts to encourage environmental awareness must include representation from major commands to include TRADOC, FORSCOM and MEDCOM to insure proper doctrine development and establishment of baseline survey management to track and trend potential issues and risks. The development of the Army's environmental training standards should reflect Joint environmental training standards as well.

Deploying units should have military environmental training material on hand from the U.S. Army Engineer School and review published "lessons learned" from TRADOC for future deployments.

Range management should be maximized to meet training requirements but within limitations imposed in accordance with unique environmental issues within the surrounding community. At various levels, workshops, roundtables, conferences, tabletop exercises and wargames can be conducted based on environment challenges and facilitated by the Army Environmental Center. All doctrine and policy should be periodically reviewed at the Army Environmental Policy Institute.

It would also be prudent to use the Environmental Management System (EMS) as required by the EPA through the establishment of mission-oriented goals and objectives by integrating environmental issues within the overall mission management. By transitioning from a compliance-based system to a quality-based Environmental Management System the design will improve compliance, reduce overall costs, decrease regulatory oversight, reduce or completely eliminate penalties and effectively demonstrate achievements and accomplishments. An effective tool for assessment is the formal environmental compliance assessment through checklists such as the Environmental Compliance Assessment System (ECAS).

Funding requirements for projects and activities should be identified and programmed as part of the annual budget process for at least 5 years into the future. Funds should be distributed as dedicated funding to avoid inappropriate use in non-environmental matters.

## **CONCLUSIONS**

The environment plays a significant role in the ability to train forces as evidenced by recent laws and their influence on military doctrine. Not only does a healthy environment sustain life but it allows for proper military training missions. Environmental security, national security and environmental protection are all related concepts that led to legislation, laws and regulations. Compliance to these policies is the responsibility of all. However as leaders, commanders are ultimately liable as well as responsible. Through proper environmental training opportunities, leaders as well as their subordinates can become aware of applicable environmental laws and compliance during military activities.

It is prudent that all applicable agencies at the federal, state and local levels share in initiatives and resources from a technology, staffing, doctrine, and strategic perspective to achieve a healthy environment. This cooperative effort must also exist between operations, training and installation management leadership to ensure a successful and sustainable range program. There must also be an understanding of state and local laws and their applicability to military installations.

Pollution affecting the air and water, management of lands, and hazardous wastes has resulted in lost land use, noncompliance fines and a generally unhappy neighbors.<sup>26</sup> The goal within the Army when conducting mission operations or training initiatives is to

conduct training safely, within readiness and budgetary allocation and at minimal disruption to cultural and natural resources. As such, the Army has a fiduciary responsibility based on trust given by the public to be good stewards of large masses of land and the accompanying environment while conducting the Army's business. Concern and attention to environmental considerations ultimately contributes to successful mission performance and readiness.

The environment has a role in national security when scarce resources, whether it be in a community neighborhood because of ranges or internationally due to fuel, food and water shortages, gives rise to conflicts of economics, productivity and preservation of life. Military and political decision makers are clearly aware of environmental stressors are a threat to national and international stability. Actions executed may affect the environment and for several future generations, so ultimately the military as good stewards with ethical intent must continue to gain support for action.

Environmental compliance should be as much a part of command philosophies as safety and equal opportunity currently are and discussed at every appropriate garrison and field opportunity through command information channels and media. The task is to integrate environmental awareness at all levels of training and mission execution to ensure stewardship becomes a standing operating procedure to eliminate unnecessary environmental damage. The responsibility to create an ethical climate in which to educate subordinates to protect the environment while still meeting mission and training objectives rests with senior leadership who must set the example. The Army can responsibly care for over 17 million acres of land entrusted to them while maintaining a ready fighting force into the 21<sup>st</sup> century.

Ultimately the goal of creating environmental awareness and integrating good stewardship in the Army is to inspire the warfighters to ethically minimize environmental damage and reduce hazards in pursuit of readiness and mission accomplishment. This is easier said than done when considering the competing requirements confronting leaders today. Being environmentally aware in the conduct of military training and operations begins with leaders.

In light of recent world affairs such as the intentional terrorist act which occurred at the World Trade Center in New York City on September 11, 2001, leaders and operational planners must constantly identify potential threats to U.S. national security interests and requirements for homeland defense from an environmental perspective.

Current doctrine and policies addressing terrorist induced environmental attacks must be re-examined.

This paper has hopefully served to make the reader aware of the complexity of environmental compliance and the necessity of successful integration in meeting the Army's training and readiness mission. It also identifies the challenges commanders and leaders will face and why compliance is everyone's responsibility.

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## ENDNOTES

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<sup>2</sup> General John M. Keene, "Installation Environmental Compliance", (Memorandum, Washington, D.C., February 2002).

<sup>3</sup> U.S. Army Training Circular, The Soldier and the Environment, No. 3-34.489, May 2001, p 1-6.

<sup>4</sup> Department of the Army Inspector General Report, "Installation Compliance January – September 2001", January 2002.

<sup>5</sup> Major General R.L. Van Antwerp, "Encroachment Issues Having a Potentially Adverse Impact on Military Readiness" (statement before the subcommittee on readiness and management support of the committee on Armed Services of the Senate, First Session, 107<sup>th</sup> Congress), March 2001, p8.

<sup>6</sup> David Eady, "Searching for Installation Sustainability in an Encroaching and Transforming Environment," Draft Report, October 2001.

<sup>7</sup> Department of the Army Field Manual 3-100.4, "Environmental Considerations in Military Operations," June 2001, 3-1-3-7.

<sup>8</sup> Army Environmental Policy Institute, Into the Millennium (Corporate Report, 1999), p 1.

<sup>9</sup> Fort Polk, Environmental Guidebook available from <http://fortpolk.radian.com/egbook.htm>, p.5-11.

<sup>10</sup> Ibid.

<sup>11</sup> COL W. Chris King, Understanding International Environmental Security: A Strategic Military Perspective, Army Environmental Policy Institute-IFP-1100A(Atlanta, Georgia, November 2000), 2-9.

<sup>12</sup> Thomas McCall, "How to Succeed in Winning and Maintaining Public Support for Military Testing and Training in the United States, Federal Facilities Environmental Journal, (Autumn 2001), 97.

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<sup>17</sup> Daniel Deundney, "Environment and Security: Muddles Thinking," Bulletin of the Atomic Scientists, (April 1991), 8.

<sup>18</sup> Sherri Wasserman Goodman, "The Environment and National Security" (remarks prepared for National Defense University, Washington, D.C., August 8, 1996); available from <http://denix.cecer.army.mil/denix/Public/ES-Programs/Speeches/speech-22.html>; accessed September 6, 2001.

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<sup>20</sup> Army Environmental Policy Institute, Future International Environmental Security Issues and Potential Military Requirements over the Period of 2010 to 2025, contract no. DACA01-01-P-0114 and DAC01-01-P-0095, 2001, p 1.

<sup>21</sup> Army Environmental Policy Institute, Defining Environmental Security: Implications for the U.S. Army, p.v.

<sup>22</sup> David Neeley and Richard Heitkamp, "Soldiers and the Environment", Engineer, (October 2001), 2.

<sup>23</sup> John M. Keane, General, U.S. Army, Vice Chief of Staff, "Installation Environmental Compliance," Memorandum, 25 February 2002.

<sup>24</sup> COL Robert Kirsch, "Directorate of Environmental Integration," briefing slides, Fort Leonard Wood, November 2001.

<sup>25</sup> Center for Army Lessons Learned, Integrating Military Environmental Protection, No. 99-9, August 1999, p 4-7.

<sup>26</sup> United States General Accounting Office, Military Capabilities: Stronger Joint Staff Role Needed to Enhance Joint Military Training, (Chapter Report, July 1995). 5-7.

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