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component of Army Transformation if the Army is to maintain a strong readiness posture and climate as a values-based institution.

As an evolutionary phenomenon, the development of environmental stewardship is a relatively new occurrence. When put in perspective, the passing of U.S. federal environmental legislation supports this assertion. It has only been in the last few decades that a national environmental consciousness has matured to a point that obliged the passing of what is the majority of environmental federal legislation in existence today. This has resulted in a 400 percent increase in federal environmental legislation passed in the last 33 years over the amount passed in the first 183 years of U.S. history (see Figure 1). To say that the military has been operating under the guise of such legislation since World War I would be a gross fabrication. Even the amount of environmental legislation that existed during the Korean and Vietnam conflicts represents less than a third of the legislation that exists today. Furthermore, it was not until the passing of the Federal Facilities Compliance Act (FFCA) in 1992 that state and local governments could impose fines on Department of Defense (DOD) facilities for noncompliance with environmental laws and regulations. The FFCA also established criminal liability against federal employees who violate federal and state hazardous waste legislation. While the Army has done well to comply with these laws (reducing the number of environmental fines imposed by the federal and state governments over the past several years, going from 58 fines in 1993 to 16 in 2002 and from 307 enforcement actions to 106 over the same period), the impact of growing and existing legislation is hampering military readiness more and more each day. This legislation boom—coupled with other encroachment considerations (the cumulative and aggregate effects from environmental regulation and urbanization that restricts or encroaches on the ability to train on installations)—and Objective Force operational requirements are having a detrimental impact on the conduct of realistic training by creating unacceptable levels of artificiality.

Urban sprawl has contributed to several of the encroachment problems DOD is facing today. During World Wars I and II, military installations were constructed in relative isolation to support the training of a much larger military. Over the last half century, urban sprawl has pushed communities up against installation borders, resulting in an increase in civilian complaints due to live-fire exercises and aircraft noise, smoke, and dust caused by maneuvers. In some cases, installations have self-imposed restricted training hours to pacify disgruntled citizens. Additionally, urban development has

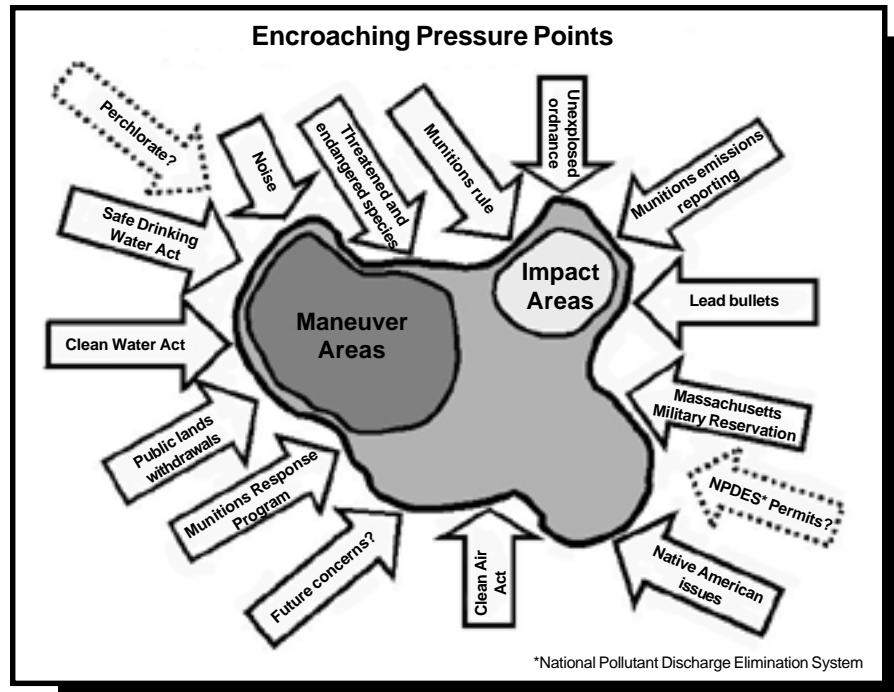


Figure 2

continued to eliminate the natural habitats of threatened and endangered species surrounding installations. As a result, these species are forced onto installations, turning these training areas into “islands of biodiversity,” which generate further training restrictions for units. Consequently, there are more than 150 endangered species residing among 94 U.S. Army installations today. Figure 2 portrays this and several other environmental variables that contribute to the degradation of a unit’s ability to train.

Urban sprawl is affecting installations in other ways. Natural resources are being consumed at a rate that stresses installation capacities. For example, Fort Bragg, North Carolina, has experienced water shortages from the increasing consumption of the growing, upstream Raleigh-Durham community. Additionally, the industry and population growth in North Carolina has resulted in more stringent air quality requirements. Regional shortfalls in complying with Clean Air Act (CAA) standards may further restrict training, construction activities, and transportation.

Objective Force operational requirements are also exacerbating the situation. Doctrinal distances for operating maneuver units are expanding from about 96 square kilometers (km²) during World War II to an operating area of about 2,500 km² for the Stryker Brigade Combat Teams (SBCTs). Consequently, the Army today is faced with the dilemma of exploring ways to sustain the Objective Force, with its known and still developing doctrinal requirements, in an increasingly restrictive training environment. The situation at Fort Hood, Texas, illustrates the encroachment problem. Of the some 185,000 acres of training land, only 16 percent (or roughly 30,000 acres) is restriction-free throughout the year. The white areas on the Fort Hood map in Figure 3, page 40, represent training areas without encroachment-related restrictions. The

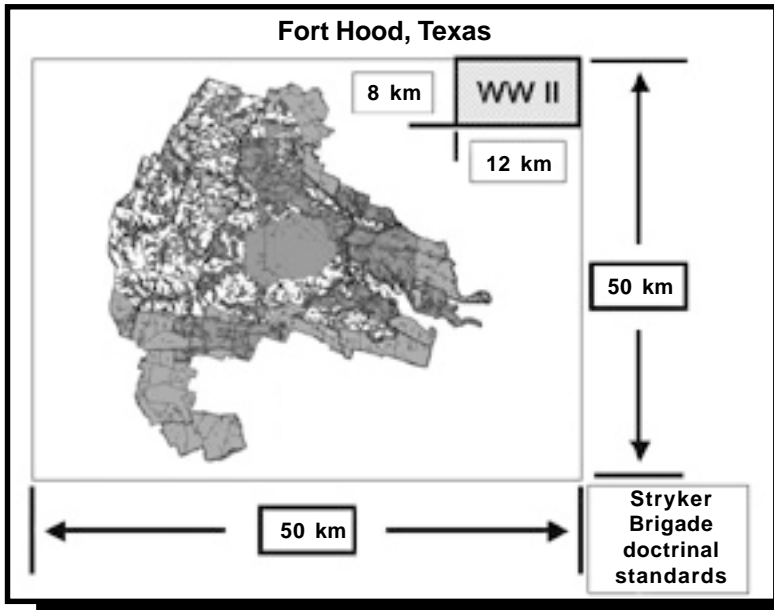


Figure 3

figure also depicts the doctrinal change in operating areas from the U.S. Army of World War II (96 km²) to the new requirements of the SBCT (2,500 km²).

The concept that addresses environmental issues and others is *sustainability*. Not to be confused with the operational term *sustainment* as defined in Field Manual (FM) 3-0, *Operations*, or Joint Publication (JP) 1-02, *Department of Defense Dictionary of Military and Associated Terms*, sustainability (or sustainment) in the context of transformation is a comprehensive approach that brings all Army resources to bear on achieving readiness. As such, initiatives like the Sustainable Range Program and Installation Sustainability Program are at the forefront of Army efforts. Transformation of Installation Management (TIM) realigns installations into seven regional directorates as part of the Installation Management Agency under the Office of the Assistant Chief of Staff for Installation Management. TIM creates a more efficient, businesslike structure and supports these sustainability initiatives. In short, sustainability is about—

- Creating efficiencies that reduce waste.
- Reducing dependence on nonrenewable resources.
- Enhancing productivity.
- Lowering system life cycle costs.
- Decreasing the environmental impacts on training and the potential for fines.
- Creating mutually beneficial relationships with local communities.
- Enhancing the well-being of soldiers and civilians.
- Optimizing the ability to conduct realistic training in support of readiness.

Achieving these objectives will be an arduous task—one that lends greater credence to the importance of an Armywide environmental ethic.

To promote the environmental ethic in support of Army Transformation, in 2000, the Vice Chief of Staff of the Army designated the U.S. Army Engineer School as the proponent for integrating environmental consideration across doctrine, organization, training, materiel, leadership, personnel, and facilities (DOTMLPF) and into military operations. On behalf of the Engineer School, the Directorate of Environmental Integration (DEI) has since developed several training products (such as resident courses and distance learning products like Army Correspondence Course Programs and Graphic Training Aids) and doctrinal publications such as FM 3-100.4, *Environmental Considerations in Military Operations*. Additionally, DEI incorporates pollution prevention initiatives into the

materiel requirements determination and development process to maximize efficiency and minimize pollution throughout a system's life cycle. This represents some of the DEI initiatives that promote Army environmental stewardship in direct support of Army sustainability initiatives.

An event that will soon be a benchmark of the Army's environmental stewardship posture is the implementation of an environmental management system (EMS). Required by Executive Order 13148, each federal agency will be required to implement an EMS at all appropriate facilities by 31 December 2005. EMS (as defined by International Organization for Standardization [ISO] 14001) is "the part of an overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining environmental policy." ISO 14001 does not define absolute requirements for environmental performance. Instead, it requires a commitment by the organization to continuous improvement. Since the goal is for improved environmental performance, the ISO 14001 methodology involves integrating effective management mechanisms into the management structure of the organization. There are five essential and auditable elements of an ISO 14001-compliant EMS. They include environmental policy, planning, implementation and operation, checking and corrective action, and management review.

The benefits of the Army's EMS directly support many activities on sustainable installations, and the areas that EMS has the potential to positively affect are abundant. The EMS will improve the forecasting ability of installation leadership in identifying environmental issues, allowing leadership to take proactive steps toward addressing these issues rather than reacting to them. It will facilitate Army Transformation by protecting training and maneuver areas. The EMS will also enhance the well-being of Army soldiers, civilians, and families

through more robust management of environmental health issues. It will facilitate compliance with the law and will help foster a climate of environmental stewardship. For example, in a post-September 11 world, the EMS will facilitate faster, more prepared responses to environmental modification threats on sensitive U.S. targets (such as attacks on power plants, wastewater treatment plants, and industrial sites) through sound consequence management and planning as part of the global war on terrorism. As part of sustainable installations, the EMS will also contribute to cost savings by reducing waste and mitigating the risks that result in environmental fines. Undoubtedly, the EMS will play a vital role in the management of environmental issues during future base realignments and closures. By providing these benefits and others, the EMS will support unit training and readiness for decades to come. However, since an effective EMS feeds into the installation management structure, it will be soldiers and civilians at all levels who will feel the effects of the EMS and ultimately determine its success or failure.

While critical to readiness, environmental considerations do not cease to be important when units deploy on missions away from installation boundaries. Although installation environmental issues may seem administrative in nature, integrating federal, state, and local environmental restrictions into the military decision-making process while training directly supports real-world contingency planning across the spectrum of military operations. FM 3-100.4 is the U.S. Army and Marine Corps guide in applying appropriate environmental protection procedures during all types of operations. In it, an excerpt from Joint Vision 2010 states—


“The American people will continue to expect us to win in any engagement, but they will also expect us to be more efficient in protecting lives and resources while accomplishing the mission successfully. Commanders at all levels will be expected to reduce the costs and adverse effects of military operations, from environmental disruption in training to collateral damage in combat.”

Increasingly, environmental considerations are playing a larger role in preserving mission legitimacy. A lessons learned publication for judge advocates, titled *Law and Military Operations in the Balkans, 1995-1998*, states that “Task Force Eagle noted that environmental considerations in peace operations are enormous because preserving the mission’s legitimacy is as critical as combat readiness to overall success.”

This bold premise, while sometimes disconcerting to warfighters, is often a defining characteristic of military operations other than war. Consequently, integrating environmental considerations across the spectrum of military operations, both vertically and horizontally, is critical to managing risk on today’s asymmetric battlefield.

DOD and the Army have embraced environmental protection as both a necessary and an ethical responsibility to achieve sustainability and readiness. Environmental stewardship directly supports the Army Vision by protecting

the natural resources that contribute to the health and welfare of our soldiers, families, and surrounding communities (people); providing forces with the land and resources necessary to conduct realistic training with minimal constraints (readiness); and transforming business processes through the implementation of an Army EMS. The EMS is a key component of sustainable installations and forging an environmental ethic in soldiers and civilians at all levels through the integration of environmental considerations across DOTMLPF (transformation). FM 3-100.4 affirms that “from every philosophical or moral perspective, environmental stewardship is the right thing to do.” Department of the Army soldiers and civilians must support this cause, not solely based on the legal requirement to do so but because it is “the right thing to do.” Understanding this moral imperative will foster the development of an environmental ethic and promote meaningful environmental stewardship.

Of the many uncertainties lingering in the future, one thing is clear: Environmental stewardship is and will continue to be part of the way the Army does business. Stewardship does not exist separate from the Army values of loyalty, duty, respect, selfless service, honor, integrity, and personal courage; rather, it is unequivocally bonded to each of them. Stewardship founded on a solid environmental ethic is an evolutionary process with the potential to reap huge benefits for installations and their surrounding communities. As institutional knowledge of the environment continues its accelerated growth, environmental considerations will play an increasingly important role throughout peace and conflict. It is the environmental ethic that facilitates the EMS. It is the EMS that supports sustainable installations. It is the sustainable installation that enables Army Transformation, and it is transformation—among other things—that will enhance readiness. While viewing these items linearly is helpful, it only partially represents what is an otherwise intertwined and difficult process. Environmental stewardship provides many benefits that extend beyond installation boundaries. Community goodwill and the enhanced prestige as the nation’s defender are also benefits of military environmental stewardship. However, achieving sound environmental stewardship requires strong environmental leadership. As FM 22-100, *Army Leadership*, puts it, “Doing the right thing is good. Doing the right thing for the right reason and with the right intention is better.” This will be the yardstick against which the Army and its soldiers will be measured, as the Army enhances combat readiness through early consideration and resolution of environmental impacts and transforms into the Objective Force. 

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