

FM 3-34.5/MCRP 4-11B

February 2010

ENVIRONMENTAL CONSIDERATIONS

DISTRIBUTION RESTRICTION. Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

This publication is available at
Army Knowledge Online (www.us.army.mil) and
General Dennis J. Reimer Training and Doctrine
Digital Library at (www.train.army.mil).

Environmental Considerations

Contents

	Page
PREFACE	iv
INTRODUCTION	v
PART ONE ENVIRONMENTAL CONSIDERATIONS	
Chapter 1 ENVIRONMENTAL CONSIDERATIONS OVERVIEW	1-1
Definitions	1-2
Environmental Implications	1-3
Linkage to the Army Universal Task List	1-10
Chapter 2 INTEGRATING ENVIRONMENTAL CONSIDERATIONS	2-1
Environmental Composite Risk Management	2-1
Planning Principles and Concepts	2-2
Integrating Environmental Considerations Into Plans, Orders, and Standing Operating Procedures	2-6
Environmentally Specific Planning	2-8
Chapter 3 ENVIRONMENTAL CONSIDERATIONS AND FORCE PROJECTION	3-1
Predeployment	3-1
Deployment	3-6
Employment	3-10
Sustainment	3-13
Redeployment	3-17
PART TWO COMMAND ENVIRONMENTAL PROGRAM	
Chapter 4 ESTABLISHING THE COMMAND ENVIRONMENTAL PROGRAM	4-1
Fostering Environmental Stewardship	4-1
Establishing the Program	4-2
Environmental Programs	4-4
Program Assessment	4-10

Distribution Restriction: Approved for public release; distribution is unlimited.

***This publication supersedes FM 3-100.4/MCRP 4-11B, 15 June 2000.**

Chapter 5	GARRISON AND DEPLOYMENT CONSIDERATIONS.....	5-1
	Garrison Considerations	5-1
	Training Considerations	5-3
Chapter 6	ENVIRONMENTAL RESPONSIBILITIES AND DUTIES.....	6-1
	Command Responsibilities	6-1
	Primary Staff	6-2
	Special Staff.....	6-4
	Personal Staff.....	6-5
	Unit-Level Responsibilities.....	6-5
Appendix A	ENVIRONMENTAL REGULATIONS, LAWS, AND TREATIES.....	A-1
Appendix B	ENVIRONMENTAL ANNEX TO JOINT PLANS AND ORDERS	B-1
Appendix C	ENVIRONMENTAL APPENDIX TO THE ENGINEERING ANNEX FOR ARMY OPERATION PLANS AND OPERATION ORDERS	C-1
Appendix D	ENVIRONMENTALLY RELATED RISK ASSESSMENT	D-1
Appendix E	ENVIRONMENTAL BASELINE SURVEY	E-1
Appendix F	HAZARDOUS MATERIAL/HAZARDOUS WASTE MANAGEMENT PROCEDURES FOR FIELD OPERATIONS.....	F-1
Appendix G	BASE CAMP OPERATIONS.....	G-1
Appendix H	ENVIRONMENTAL OFFICER.....	H-1
Appendix I	SAMPLE COMMAND POLICY	I-1
Appendix J	UNIT ENVIRONMENTAL STANDING OPERATING PROCEDURES.....	J-1
Appendix K	MATERIAL SAFETY DATA SHEETS.....	K-1
Appendix L	ENVIRONMENTAL PROGRAM RESOURCES.....	L-1
	GLOSSARY	Glossary-1
	REFERENCES.....	References-1
	INDEX	Index-1

Figures

Figure 5-1. Continual improvement	5-2
Figure B-1. Sample environmental considerations annex (annex L)	B-2
Figure C-1. Sample appendix 5 (environmental) to annex G (engineering)	C-2
Figure D-1. Sample completed risk management worksheet	D-2
Figure E-1. ECR format.....	E-6
Figure I-1. Sample commander's environmental policy letter	I-2
Figure I-2. Sample environmental officer appointment order	I-3
Figure J-1. Unit environmental SOP	J-2
Figure J-2. Tab A – Spill response plan to unit environmental SOPs	J-16
Figure J-3. Tab B – Spill equipment and materials to unit environmental SOPs	J-18
Figure J-4. Tab C – Electronic message report formats to unit environmental SOPs ...	J-20
Figure K-1. Sample MSDS	K-4

Tables

Table 2-1. MDMP environmental considerations	2-5
Table 2-2. JOPES annexes and appendixes with significant environmental considerations	2-7
Table 3-1. Sample basic packing list.....	3-5
Table 3-2. Deployment guidelines	3-6
Table 3-3. Sustainment guidelines	3-14
Table 3-4. Redeployment guidelines.....	3-18
Table D-1. Common environmental hazards	D-3
Table D-2. Hazard probability chart.....	D-4
Table D-3. Hazard severity chart.....	D-5
Table D-4. Risk assessment matrix.....	D-7
Table D-5. Environmentally related controls	D-8
Table E-1. Environmental baseline survey format	E-4
Table F-1. Personal protective equipment	F-4
Table F-2. Storage segregation chart.....	F-7
Table G-1. Typical environmental program areas and goals/impacts	G-5
Table H-1. Environmental officer duties	H-2
Table K-1. MSDS guide.....	K-1
Table K-2. Chemical hazards	K-3

Preface

Field Manual (FM) 3-34.5/Marine Corps Reference Publication (MCRP) 4-11B establishes and explains the principles of environmental support in full spectrum operations and the ways in which United States Army and United States Marine Corps (USMC) commanders develop and implement command environmental programs. This manual supports the doctrine found in Joint Publication (JP) 3-34, FM 3-0, FM 3-34, and FM 3-34.170/Marine Corps Warfighting Publication (MCWP) 3-17.4.

This manual provides guidance on integrating environmental considerations into the conduct of operations. It defines environmental considerations and provides guidance on their integration into the operations process. This manual also provides guidance on the development of command environmental programs and standing operating procedures (SOPs) to support operations and training.

Terms that have joint or Army definitions are identified in both the glossary and the text. Glossary terms: The glossary lists most terms used in FM 3-34.5/MCRP 4-11B that have joint or Army definitions. Terms with an asterisk in the glossary indicate that this FM is the proponent FM (the authority). Text references: Definitions printed in boldface in the text indicate that this FM is the proponent FM. These terms and their definitions will be incorporated into the next revision of FM 1-02/MCRP 5-12A. For other definitions in the text, the term is italicized, and the number of the proponent FM follows the definition.

Where the term “mission, enemy, terrain and weather, troops and support available, time available, civil considerations (METT-TC)” or “mission variables” is used, the USMC uses the term “mission, enemy, terrain and weather, troops and support available, time available (METT-T).” Civil considerations are inherently measured within the context of this acronym. The USMC title “environmental compliance officer” is generally the same as the Army term “environmental officer” as used throughout the manual. Unless this publication states otherwise, masculine pronouns do not refer exclusively to men.

This publication applies to the Active Army, the Army National Guard (ARNG)/Army National Guard of the United States, the United States Army Reserve (USAR), and USMC commanders and staffs, at all echelons of command, responsible for planning and executing operations. This doctrine applies to United States (U.S.) unilateral operations and U.S. Army and Marine Corps forces in multinational operations subject to applicable foreign nation laws and agreements.

The proponent for this publication is the United States Army Training and Doctrine Command (TRADOC). Send comments and recommendations on Department of the Army (DA) Form 2028 (*Recommended Changes to Publications and Blank Forms*) directly to Commander, Maneuver Support Center Directorate of Training, ATTN: ATZT-TDD-E, 320 MANSCEM Loop, Suite 270, Fort Leonard Wood, Missouri 65473-8929. Submit an electronic DA Form 2028 or comments and recommendations in the DA Form 2028 format by e-mail to <leon.mdottddengdoc@conus.army.mil>.

Introduction

The military's primary mission is to fight and win our nation's wars. Warfare, by its very nature, is destructive to humans and to the natural environment. Commanders are required to exercise judgment in applying combat power and limit damage inflicted to the extent that mission accomplishment allows. Commanders must plan to implement postconflict stability measures and always keep the health and safety of their Soldiers, Marines, DA civilians, and contractors foremost in their planning. Integrating environmental considerations into the planning process helps the military to identify, prevent, and mitigate potential threats to the environment (including those affecting historical and cultural resources) and potential environmental threats to Soldiers and Marines.

Environmental considerations are not solely focused on protection of the environment. For example, force health protection (FHP) issues may be directly linked to operational affects on the environment. FHP will significantly benefit from the integration of environmental considerations in the conduct of operations. Integrating environmental considerations also sustains resources, reduces the logistics footprint, promotes positive foreign nation relations, and supports postconflict stability efforts. All of these objectives contribute to the effectiveness of the mission and, when properly integrated, serve as force multipliers rather than mission distracters.

The most seamless integration will occur in organizations that foster an environmental ethic, practice active environmental sustainability, and perform an environmental risk assessment as early as possible when planning an operation. Environmental considerations in planning must encompass all aspects of the mission, from predeployment training through redeployment, and include such varied topics as targeting considerations, protecting hazardous material (HM) storage sites, and selecting base camp locations. Environmental considerations will apply to all operations, although a risk assessment may cause their relative importance to vary.

This manual is organized to aid commanders and staffs in their understanding of environmental considerations, and it describes how to integrate and apply them through existing staff procedures. Part One, Environmental Considerations, includes environmental planning in the conduct of operations. Part Two, Command Environmental Program, provides guidance on the development and execution of unit command environmental programs.

- Chapter 1 describes the way environmental considerations apply to operations—to include their implications at the operational and tactical levels.
- Chapter 2 supports FM 5-0 by covering the way that environmental considerations are integrated into planning activities of the operations process, to include their integration into environmental risk assessments and the military decisionmaking process (MDMP). This chapter also discusses integrating environmental considerations into plans, orders, and SOPs and includes a general discussion of environmentally specific planning.
- Chapter 3 discusses what and when to plan. This includes environmental considerations in predeployment, operations, and redeployment. This chapter also includes discussion of environmental considerations within the context of some specific focus areas, including topics such as predeployment environmental training; planning for HM storage, transportation, and disposal; targeting considerations; base camp operational issues; Soldier and Marine health considerations; and redeployment issues.
- Chapter 4 provides guidance on the establishment of unit-level environmental programs, including the development of SOPs and environmental training requirements.
- Chapter 5 provides information on integrating environmental considerations into unit operations in garrison, on deployments, and in training exercises.

- Chapter 6 describes the way that various staff sections plan for and integrate environmental considerations within various areas of expertise.
- Appendix A provides the primary environmental regulations and principal environmental laws applicable to military activities.
- Appendix B provides the formation for the environmental annex and the environmental appendix to the engineer annex.
- Appendix D discusses completing an environmental risk assessment.
- Appendix E provides guidance for conducting an environmental baseline survey (EBS).
- Appendix F discusses HM and hazardous waste (HW) management for field operations.
- Appendix G provides guidelines for integrating environmental considerations into base camp operations.
- Appendix H provides additional information for the environmental officer.
- Appendix I provides an example of an environmental policy letter.
- Appendix J provides an example of a unit environmental SOP.
- Appendix K discusses the information required to complete a material safety data sheet (MSDS).
- Appendix L provides a listing of resources for implementing and sustaining a unit environmental program.

This manual serves as a guide to aid planners in identifying environmentally related issues as they pertain to operations and enables them to integrate these issues into the operations process. While certain tactics, techniques, and procedures identify the way units will accomplish these tasks and vary depending on the situation, this manual provides a common frame of reference to guide commanders and their planners in integrating environmental considerations into the mission.

PART ONE

Environmental Considerations

Environmental considerations need to be integrated into the conduct of operations at all levels of command. While their relevance will vary depending on the particular situation, commanders and staffs must identify and integrate them as early as possible in planning an operation. This part of the manual describes how environmental considerations may influence operations and how they are integrated into planning and other activities in the operations process.

Chapter 1

Environmental Considerations Overview

The U.S. national security strategy now includes a focus on environmental and environmental security concerns. Lasting victories and successful end states will be measured in part by how well the military addresses environmental considerations, to include the protection and the conservation of natural and cultural resources; the improvement of citizens' living conditions in the affected nations; and FHP. Environmental considerations comprise a broad band of issues that must be integrated into all phases of military operations (from premobilization training, to the employment of forces, to the redeployment to home stations). Environmental considerations impact planning at all levels (from strategic to tactical) and at all echelons. Increasingly complex operations make the integration of environmental considerations even more challenging. Each operation presents a unique set of requirements that relates to and is influenced by the environment. Requirements vary according to the differences in the natural environment; the effects of military operations; the duration of the operation; and the various cultural, political, and religious sensitivities involved. While standards for environmental protection may not be as stringent in some overseas operations as they are in garrison, they are of great importance. Integrating these standards into full spectrum operations presents unique challenges. Senior commands must integrate environmental guidance into their operation plans (OPLANs) and operation orders (OPORDs). This guidance is essential to provide the balance between the operational framework and the environmental ethic within which subordinate commands conduct their operations. This chapter discusses environmental considerations and outlines their implications within the context of full spectrum operations.

DEFINITIONS

1-1. As doctrine continues to evolve, many doctrinally related definitions have been changed and updated. Defining environmental considerations and their associated terms gives a better understanding of their means of implementation.

CONTINGENCY OPERATIONS AND EXPEDITIONS

1-2. Since the Cold War, U.S. forces have conducted an increasing number of contingency operations and expeditions. U.S. forces are living and working outside of the established garrison environment, conducting operations in nations that previously saw limited U.S. military involvement.

1-3. A contingency operation, such as a response to a natural disaster conducted in the continental United States (CONUS), will require that the military follow U.S. environmental laws and regulations with limited exceptions. An expedition, which by definition is conducted in a foreign country, requires guidance and analysis from the senior command to determine the applicable policy and legal requirements.

ENVIRONMENTAL CONSIDERATIONS

1-4. *Environmental considerations* is the spectrum of environmental media, resources, or programs that may impact on, or are affected by, the planning and execution of military operations. Factors may include, but are not limited to, environmental compliance, pollution prevention (P2), conservation, protection of historical and cultural sites, and protection of flora and fauna. (JP 3-34) They include a myriad of specifics dealing with protection of the natural and cultural environment and environmental considerations in FHP. **The natural environment is the human ecosystem, including both the physical and biological systems that provide resources (clean air, clean water, healthy surroundings, and sufficient food), necessary to sustain productive human life. Included in the natural environment are man-made structures, such as water and wastewater treatment facilities and natural/cultural resources.** It represents more than habitat and living species; it includes a broad range of considerations, some of which are man-made. *Force health protection* is defined as measures to promote, improve, or conserve the mental and physical well-being of Servicemembers. These measures enable a healthy and fit force, prevent injury and illness, and protect the force from health hazards. (JP 4-02)

1-5. An *environmental area of interest* is an environmentally sensitive area that may be deemed worthy of special consideration because of its unique and important qualities relative to adjacent areas (for example, the only forest within a large region) or the importance of its natural environment function (for example, a wetland, flood plains, permafrost area, or an endangered species critical habitat). **The environmental area of interest includes man-made structures, such as wastewater treatment plants and dams.**

1-6. *Environmental stewardship* is the integration and application of environmental values into the military mission in order to sustain readiness, improve quality of life, strengthen civil relations, and preserve valuable natural resources. (JP 1-02) Environmental stewardship represents the reflection of leader and individual awareness of and commitment to protecting the environment. It is a proactive, values-based concept that helps to ensure the sustainability and conservation of resources.

1-7. Sustainability is a process by which resources are used in a manner that allows their continued availability. As applied to an environmental strategy, a sustainable Army simultaneously meets current as well as future mission requirements worldwide, safeguarding human health, improving quality of life, and enhancing the natural environment (see *The Army Strategy for the Environment* for additional information).

1-8. The principles of environmental stewardship and sustainability support environmental protection. ***Environmental protection* is the application of human ingenuity and resources, through the disciplines of science and engineering, as required by environmental protection laws, regulations, and policies, to protect the natural environment.** They accomplish this by adding the dimensions of human attitudes and values to the technical environmental protection process.

1-9. FHP is a vital concern for every commander. Many of the factors that affect the health of Soldiers and Marines may be directly related to environmental considerations within the theater and to the effects on the environment created by military actions. While FHP is not subordinate to environmental considerations, it does encompass many aspects of it.

1-10. The areas relating to preventive and curative health contain embedded environmental considerations as required by both national and international environmental protection laws. In addition, other aspects of FHP contain environmental components, such as managing *medical waste (defined as any waste that is generated in the diagnosis, treatment, or immunization of human beings or animals)*, blood supply, and HM related to medical operations. See JP 4-02, JP 4-02.1, and other Service-specific health service support manuals.

ENVIRONMENTAL HAZARDS AND RISK MANAGEMENT

1-11. A *hazard* is a condition with the potential to cause injury, illness, or death of personnel; damage to or loss of equipment or property; or mission degradation. (JP 3-33) Hazards are subcomponents of risks and, at times, the terms are used interchangeably.

1-12. ***An environmental hazard is defined as all activities that may pollute, create negative noise-related effects, degrade archaeological/cultural resources, or negatively affect threatened or endangered species habitats. They also include environmental health-related hazards.*** An environmental hazard is a subset of all hazards.

1-13. Hazards create risks that the military must anticipate, plan for, and mitigate. The composite risk management (CRM) process is one of detecting, assessing, and controlling risk arising from operational factors and balancing that risk with mission accomplishment. Environmental risks are those risks both to and from the environment that must be included in the CRM process. This would also include counter-proliferation and consequence management actions associated with chemical, biological, radiological, nuclear, and high-yield explosives (CBRNE), including toxic industrial materials (TIMs) and improvised explosive devices (IEDs). ***Toxic is defined as capable of producing illness, injury, or damage to humans, domestic livestock, wildlife, or other organisms through ingestion, inhalation, or absorption through any body surface.***

ENVIRONMENTAL RECONNAISSANCE

1-14. The military conducts environmental reconnaissance to gather technical information pertaining to environmental conditions, including conditions relating to safety and FHP. ***Environmental reconnaissance is defined as the systematic observation and recording of site or area data collected by visual or physical means, dealing specifically with environmental conditions as they exist, and identifying areas that are environmentally sensitive or of relative environmental concern, for information and decisionmaking purposes.*** Commanders use this information to assess the impact of military operations in the environment and the effect that the environment may have on military and civilian personnel. Chapter 3 and Appendix E provide further guidance and information. Refer also to FM 3-34.170/MCWP 3-17.4 for further information.

ENVIRONMENTAL IMPLICATIONS

1-15. The military has a new appreciation for the interdependence between military missions, the global community, and the environment. Factors influencing international security and stability have dramatically changed. Global population and industrial activity have grown, and technological advances have accelerated. These phenomena have begun to shift the foundations of strategic analysis, altering the relationships between human populations and the supporting natural environment. As nations industrialize, they use more natural resources, which can lead to potential conflicts over the exploitation of scarce resources. In addition, rapidly industrializing nations frequently fail to implement adequate environmental controls. These inadequate environmental controls can lead to conflicts with neighbors and can present health concerns to their population and to U.S. military personnel conducting operations.

1-16. Protecting natural resources and the facilities exploiting them are now major components of planning. U.S. forces must plan to protect natural and cultural resources and mitigate conflicts driven by these issues. Failure to do so may have impacts far beyond the initial damage that results. Environmental considerations will impact operations at all levels of command and should be integrated, as appropriate, into the conduct of those operations. Integration of environmental considerations into activities at home stations provides a means for promoting the principles of stewardship and sustainability that will support environmental protection at home and abroad.

OPERATIONS PROCESS

1-17. When conducting full spectrum operations, commanders must balance environmental protection and mission requirements. Military environmental protection principles do not necessarily override other operational or mission variables; rather they are standard considerations for inclusion in the conduct of the operation. The mission variables for the operation determine and quantify the time and resources devoted to environmental protection. Commanders must analyze environmental considerations and impacts in concert with the operational and mission variables.

1-18. Environmental considerations and their relative importance will vary based on the type of operation, but the U.S. military must address them to ensure that it meets its objectives. Environmental considerations, regardless of the type of mission, are significant in each of the activities of the operations process and must be addressed throughout each phase of the operation. Issues such as site selection, target selection, HM transportation, FHP, risk management, base camp site selection, base camp operation, community relations, redeployment and camp closure actions, sensitive site exploitation, and environmental remediation in support of reconstruction efforts now play an important part in how the military plans and conducts operations.

1-19. Commanders and staffs must plan for and integrate environmental considerations into each phase of the operation as early as possible. While predeployment, deployment, employment, sustainment, and redeployment of forces each present different environmental challenges, the early integration of environmental considerations into the planning activities for each phase will enable building on the success of previous phases. Chapter 3 details the various aspects of integrating environmental considerations in each phase of an operation.

LEGAL FRAMEWORK

1-20. An extensive legal framework addresses environmental protection. Various international treaties, status-of-forces agreements (SOFAs), the overseas environmental baseline guidance document (OEBGD), final governing standards (FGS), and U.S. military Services regulations provide direction on conducting operations while protecting the environment. These laws/regulations impact military operations by preventing certain operations (such as environmental modification as prohibited by the 1977 Environmental Modification Convention) and by regulating others (such as the cross border movement of HM regulated by the Basel Convention). While the United States is not a party to the 1977 addition (Protocol I) to the 1949 Geneva Conventions, it states that combatants are required to "...protect the natural environment against widespread, long-term, and severe damage" during war. The United States and international communities each expect greater environmental protection during military operations than in the past.

1-21. The OEBGD prescribes implementation guidance and procedures for ***environmental compliance*** (defined as the unconditional obeying of international, foreign nation, federal, state, and local environmental rules, regulations, and guidelines that affect current operations) on Department of Defense (DOD) facilities outside the continental United States (OCONUS), but does not apply specifically to ships, aircraft, or the ground component in a selected contingency. It is meant for guiding the use of temporary and fixed facilities; however, the information may serve as a useful guideline for other situations. FGS developed for each foreign nation are country-specific and designed to provide guidance on particular aspects of environmental protection, such as effluent ***discharges*** (defined as the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of a substance into or on any land or water) or base camp-specific management practices.

1-22. Environmental considerations are not restricted to land operations. Maritime operations are also regulated by international law, such as the United Nations Convention on the Law of Sea (article 236), and by U.S. statutes, such as the Marine Mammal Protection Act.

1-23. U.S. forces must be aware of the environmental laws that may impact operations and plan accordingly. While the United States may not be signatory to some of these legal requirements, the political environment may still require the United States to adhere to them. Military members who violate environmental laws or regulations may be punished under the Uniform Code of Military Justice. Commanders and the personnel under their command must be aware of the requirements to avoid potential violations of international laws and to maintain the national environmental ethic. ***Environmental ethic is defined as taking care of the environment because it is the right thing to do; this ethic is the operating principle and value that governs individual Soldiers, units, and the Army.***

COMPETITION FOR RESOURCES

1-24. Strategic resources such as oil, minerals, and water supplies have often been catalysts for conflict. The current struggle to obtain and secure adequate energy resources is the latest in a series of natural resource-driven conflicts. Historically, the United States was largely explored and founded by nations seeking to take advantage of its natural resources; wars were fought over such mundane but lucrative resources as the fur trade and access to timber. Adequate sources for ships' masts were as important then as oil supplies are today. As more nations industrialize, the list of potential resource-driven trouble spots around the globe increases.

1-25. As nations compete for resources, the potential for armed conflict increases. Water rights in the Middle East, access to diamond mines in Africa, and ownership of islands with access to oil deposits off the Philippines all present potential areas for future conflict. These conflicts may impact the United States, either through the requirement for armed intervention or the requirement for humanitarian assistance.

1-26. Theater-level planners consider the possibility of environmentally driven conflicts within their areas of responsibility (AORs). Planners must prepare for these sources of conflicts between states alongside conflicts based on political, economic, religious, ethnic, and other issues. These plans must address potential trouble spots and the effect environmental considerations may have on military action at the source of the conflict.

ENVIRONMENTAL DAMAGE

1-27. In addition to competition for resources, environmental and natural disasters may result in conflict. A nuclear plant accident or a major industrial ***spill (defined as a generic term that encompasses the accidental and the deliberate but unpermitted discharge or release of a pollutant)*** on a river that affects more than one nation may create economic damage to all parties and increase tensions between neighbors. The resulting claims for financial and legal settlements, along with the hostile feelings engendered, have the potential to lead to armed conflict. Man-made conflicts and disasters as well as natural disasters create tremendous impacts on the local populations and the environment.

1-28. In addition to overt armed conflict issues, the struggle for resources and the environmental damage resulting from human and natural events may lead to humanitarian crises. The loss of habitat, clean water sources, cropland, and mineral rights upsets economic, social, and cultural systems. The resulting poverty, disease, and malnutrition create the need for humanitarian-assistance operations. In addition, the flow of refugees within and across national borders can upset the balance of the population and increase ethnic and religious tensions between rival groups.

1-29. Contingency planning must address stability efforts in areas affected by environmental issues. These issues include the effect that local and regional conflicts and natural disasters have on the environment. Planners must develop contingency plans, which integrate environmental considerations into the response to environmental disasters.

ETHNIC, CULTURAL, RELIGIOUS, AND HISTORICAL CONSIDERATIONS

1-30. As the number of conflicts between rival empires and political/economic systems decreases, the number of conflicts based on the human dimensions of ethnicity, culture, and religion increases. The breakup of European empires has left rival ethnic groups competing for dominance in nations throughout the world. Conflicts relating to these ethnic, cultural, and religious issues can create humanitarian-related crises. These conflicts create long-term population displacement and engender long-lasting hatreds difficult to resolve, even after economic and quality of life disparities have been addressed. In these situations, symbolism may be critical. The possession of or damage to cultural, religious, or historical sites may be adequate provocation for armed conflict.

INFORMATION OPERATIONS

1-31. Information operations (IO) include not only tactical and computer systems information security but also the way that information regarding U.S. operations is presented and perceived. The control, protection, and flow of information in the global media may have both positive and negative impacts on operations. During Operation Desert Storm, Iraqi forces destroyed oil wells throughout Kuwait. This destruction—with its associated environmental impacts—was portrayed as “environmental terrorism” in the media and helped to galvanize support against the regime of Saddam Hussein. Similarly, any environmental damage created by U.S. forces conducting operations, however unintentional, may be used as a weapon in the public information campaign against U.S. operations and undermine U.S. strategic objectives.

1-32. The U.S. military maintains a strong environmental ethic to support national values. Commanders now stress environmental stewardship and sustainability as an essential part of military operations. National values stress that the military use sound environmental judgment while conducting its operations and minimize environmental damage to the extent possible.

1-33. The fact that the U.S. military displays that it cares for the environment means that support for sound environmental practices in contingency operations becomes even more essential. The public will not support wanton environmental destruction; any violations of the environmental ethic—real or perceived—will negatively impact IO and can undermine U.S. strategic objectives. Commanders and staffs must be aware of public perceptions and understand the implications that may result. The following vignette provides an example of how lack of environmental consideration can affect public perception. Negative public perception can impede IO.

Issue

Maneuver damage angers Korean civilians.

Discussion

The convoy routes that U.S. Army units take to and from their field training exercise (FTX) locations in Korea include travel through civilian population areas. During an FTX, wet and muddy field conditions caused vehicles to deposit large amounts of mud on the roadways. This resulted in hazardous driving conditions, angering the local population.

The unit's maneuver damage control plan included procedures to use water trucks to wash the mud from the roadway. However, due to freezing temperatures, the team chose not to use the water trucks. This decision was not coordinated with the local authorities and gave them a false perception of U.S. inaction and indifference. The local populace responded by organizing roadblocks with tractors and wagons, which halted movement of Army vehicles. This incident reinforced Korean perceptions of the "ugly Americans."

Techniques and Procedures

Units must—

- Include maneuver damage control in unit SOPs.
- Address maneuver damage in the OPORD.
- Identify all hazards associated with each FTX task.
- Coordinate with local authorities for the convoy movement.
- Conduct a route reconnaissance to identify hazards.
- Select alternate routes around populated areas and civilian traffic patterns.
- Clean the mud off vehicles before redeployment.
- Employ a maneuver control damage team with the proper equipment.

FORCE HEALTH PROTECTION/PREVENTIVE MEDICINE

1-34. As nations continue to industrialize, the quantity of toxic industrial chemicals (TICs) and TIMs created and used increases. In most of the developing nations, the standards for the storage and disposal of these materials are much lower than they are in more developed nations. ***Disposal (waste)* is defined as the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water. The act is such that the solid waste or hazardous waste, or any constituent thereof, may enter the environment or be emitted into the air or discharged into any waters, including groundwater.** U.S. forces conducting combat operations may be exposed, accidentally or intentionally, to a ***hazardous substance* (defined as elements, compounds, mixtures, solutions, and substances that, when released into the environment, may present a substantial danger to public health and welfare or the environment)**. Environmental considerations must address the impacts of operations, to include targeting potentially dangerous industrial sites. Forces involved in stability missions may encounter HM in the base camp and in operational areas. These materials present significant health threats to exposed Soldiers and Marines. Any future use of the contaminated area may also present health risks to the civilian population.

1-35. Sanitation standards in developing nations are also much lower than in developed nations. Open sewers, unsafe drinking water, open-pit landfills, contaminated standing water, insect- and rodent-borne

vectors, and other contamination sources are prevalent. Soldiers and Marines exposed to these hazards may become sick or injured through these chemical and biological exposures.

1-36. Commanders and staffs must plan health protection and preventive medicine measures for their personnel. Immunizations, personal protective equipment (PPE), and training requirements must be addressed for individual Soldiers and Marines, while planners integrate health protection into operations such as base camp site selection. See FM 4-02 for additional information. The following vignette provides an example of how environmental hazards might affect FHP considerations.

<p style="text-align: center;">Issue</p> <p>The improper disposal of HW affects Soldier and Marine health and welfare (Operation Iraqi Freedom).</p> <p style="text-align: center;">Discussion</p> <p>U.S. forces occupying a base camp in Iraq failed to properly dispose of their HW. Insecticides; used vehicle batteries; petroleum, oils, and lubricants (POL); and other HW were dumped in the same area as solid waste. Additionally, fuel and gray water trucks were parked nearby and leaked their contents into the dump. The unit did not implement spill containment or cleanup procedures to prevent the hazardous fluids from potentially entering the water table. These wastes also posed an environmental health hazard to the Soldiers and Marines occupying the camp and to any civilians that might occupy the site later. Mixing wastes increased the likelihood of spontaneous combustion. Additionally, enemy fire hitting this area increased the risk of toxic and noxious vapors against which the Soldiers' and Marines' protective gear would be ineffective.</p> <p style="text-align: center;">Techniques and Procedures</p> <p>Commanders must—</p> <ul style="list-style-type: none">• Practice environmental management during operational deployments.• Appoint and train an environmental officer for both garrison and operational environments.• Conduct environmental assessments and environmental risk assessments.• Apply the laws, regulations, and other guidance documents pertaining to the disposal of solid and HW (to include foreign nation laws).• Establish local environmental and waste-management policies and procedures.• Use the deployed base camp mayor, Directorate of Public Works (DPW), or unit environmental officer to report environmental and waste-management issues.• Train personnel within the unit on HM/HW handling and procedures.• Consult with preventive medicine units for monitoring support.• Ensure that tenant units have access to sufficient quantities of proper HW storage containers.

FORCE SUSTAINMENT

1-37. U.S. forces consume large quantities of materials. HM and POL products in particular are used in large quantities. All of these materials require proper transportation, handling, storage, and disposal techniques. Military operations also generate large quantities of waste products. **Waste is defined as any discarded material.** Human waste, medical waste, *hazardous waste (defined as a solid waste that is either listed as such in federal law or exhibits any of the four hazardous characteristics—ignitability,*

corrosiveness, reactivity, or toxicity), damaged or destroyed military material, construction materials, and even household/consumer products all require proper disposal. Base camp facilities supporting operations need to be constructed, maintained, and closed at the end of operations. These sites should address FHP issues, waste disposal, and HM/HW storage.

1-38. Commanders and staffs should develop plans to address the environmental component of force sustainment. Much of the effort is resource-intensive, requiring spill cleanup, storage containers, and construction materials. Adequate subject matter experts (SMEs) provide advice and help plan and manage operations; legal and contracting experts arrange for transportation and disposal by foreign nation or civilian contractors. These requirements may present significant challenges to conducting operations. Commanders and staffs must also integrate P2 concepts and technology to help reduce waste disposal requirements. See the following vignette pertaining to the effect of environmental considerations on force sustainment.

<p>Issue</p> <p>The disposal of used motor oil involves excessive cost and effort.</p> <p>Discussion</p> <p>Before May 2002, all of the Army's used oil products were transported from the Balkans to Germany for disposal, requiring a large logistical support structure. Recently, a problem with used oil has been identified in Afghanistan and Iraq. Weekly oil generation there is estimated at 10,000 to 20,000 gallons. The U.S. military currently spends a significant amount of money collecting, storing, and disposing of used motor oil. These costs are even more dramatic overseas and in forward-deployed locations.</p> <p>Techniques and Procedures</p> <p>The Army has identified a technology called oil reutilization that will transform used motor oil into usable fuel without spending resources on collection, storage, or disposal of the oil. This technology removes the oil from the crankcase, filters the mixture, blends it with fuel from the vehicle fuel tank, and deposits it into the vehicle for use as fuel.</p> <p>The oil reutilization process has proven to eliminate used oil from the waste stream and results in fuel cost savings. Aside from cost savings relating to waste-oil disposal and fuel purchases, the reduced manpower resulting from the oil reutilization process was an added benefit. Before the use of an oil reutilization unit, the Balkans' disposal process required handling the waste eight separate times by multiple individuals. The waste reutilization unit cycle is a one-person, three-step process conducted in a local maintenance shop.</p>

STABILITY OPERATIONS

1-39. Stability operations, whether conducted after major combat operations or in support of natural-disaster recovery, present many environmental challenges. These challenges include areas such as remediation of environmental damage, sensitive-site exploitation, environmental **restoration (defined as the systematic removal of pollution or contaminants from the environment, especially from the soil or groundwater, by physical, chemical, or biological means; also known as remediation or environmental cleanup)**, and environmental considerations as they apply to construction operations.

Thank You for previewing this eBook

You can read the full version of this eBook in different formats:

- HTML (Free /Available to everyone)
- PDF / TXT (Available to V.I.P. members. Free Standard members can access up to 5 PDF/TXT eBooks per month each month)
- Epub & Mobipocket (Exclusive to V.I.P. members)

To download this full book, simply select the format you desire below

