Integrating Environmental Policy Into Other Army Policies

Army Environmental Policy Institute
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Integrating Environmental Policy Into Other Army Policies

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Abstract

Participants in the August 1991 Army Environmental Policy Institute (AEPI) Environmental Trends and Policy Workshop identified for special treatment the topic, "extent to which environmental management policy pervades the total policy and culture of an organization, with emphasis on relevance to the Army as it currently operates."

Scientific Applications International Corporation (SAIC), which has expertise with both private and public sector organizations for this effort, conducted an independent study with goals of: placing the trend into overall perspective; analyzing current Army policy; forecasting future implications; analyzing potential significance to the Army; and (where appropriate) recommending how Army policy and activities might be improved.

AEPI evaluated other Army data, primarily from official audits and inspections. The additional information showed: a) environmental policy integration has not been realized, as manifested by a number of measures; and b) action is desirable to correct systemic problems inhibiting full compliance with the National Environmental Policy Act (NEPA) provision that federal agencies are to be environmentally responsible, not simply meet the law. SAIC suggests that the trend in U.S. society of integrating environmental sensitivity into routine operations will continue to grow and points out the growing implementation of integrated policies in the private sector. Having identified areas for possible improvement, SAIC proposes a number of approaches focusing on emulating several private and public sector "success elements," such as centralizing overall environmental coordination at a high executive level, emphasizing all functions' obligations to do their own business environmentally correctly, and entering into joint solutions with private and other public entities. They refer to applying several concepts: core competency, strategic intent, scenario analysis, maximizing environmental value added as a decision criterion, and forming strategic alliances.

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Principal authors are Mr. John Fittipaldi and Mr. Robert Jarrett for Section I, and Ms. Francis Rundlett for Section II. Mr. Robert Keenan, Project Leader for Science Applications International Corporation (SAIC), provided critical editorial and production leadership for Section II. Ms. Kristan Cockerill-Kafka was responsible for internal editing. Ms. Roberta Cogen Miller coordinated final report production.

Science Applications International Corporation of Falls Church, Virginia performed the study, Integrating Environmental Policy into Other Army Policies, dated June 1, 1992, which comprises Section II of this paper. SAIC performed the work under Contract No. DACA 88-92-D-0002, Delivery Order No. 0001.

Additional special thanks are due to Ms. Sue Savage of the U.S. Army Construction Engineering Laboratories (USACERL) editorial staff for aid in finding and correcting a multitude of errors and inconsistencies in the Section I draft.

Participants of the August 1991 Environmental Trends and Policy Workshop at Champaign, Illinois identified this topic as a pivotal issue deserving special study and executive consideration (see Appendix A). This paper would not have been attempted without their collective insight.

The very substantial report finding assistance provided by staffs of the Department of Defense Inspector General, Army Audit Agency and Department of the Army Inspector General contributed importantly to Section I analyses. Without that help, the long-term durability of organizational factors affecting Army Environmental Program success might not have been seen. Had that been overlooked, many of the SAIC report observations and suggestions might have been discounted incorrectly as simply representing advocacy by the author. The fine content review assistance of LTC Mike Dougan, Mr. Richard Dzarniowski, Mr. Russell Forrest, Mr. Robert Redman and Mr. Jackie Smith proved invaluable.

The Institute's mission is to assist the Army Secretariat in developing proactive policies and strategies to address environmental issues that may have significant future impacts on the Army. The views presented in this document do not necessarily reflect the policies or views of the respective institutions of the contributors, reviewers and staff nor should they be construed as an official Department of the Army position, unless so designated by other authorized documents.

Numerous individuals and organizations contributed to this white paper through their willingness to contribute anecdotal data via Mr. Stine's study of installation level problems and by providing ideas and corrections to this paper.

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SECTION I

Section I Contents

1. Terms of Reference

1.1 Purpose

This paper, which combines an analysis by the Army Environmental Policy Institute (AEPI) and a basic study by Scientific Applications International Corporation (SAIC), presents observations on conditions concerning the general effectiveness of the Army Environmental Program and suggests behavioral and organizational options for spreading environmental policy throughout the Army. It is offered as a source of: policy formation ideas; facts and arguments supporting policy that might be developed; and justification for policy and implementation actions already underway but for which the proof of legitimacy may be weak or undocumented.

1.2 Scope

Integrating environmental protection and enhancement principles and policy into the operative culture of the Army is reviewed in a historical context (Section I) and in the light of formal requirements and potentially useful managerial tools (Section II). No attempt is made to exhaustively evaluate the integration and success of environmental policy in all fields of Army activity. However, insights gained from a few areas are used to show the need for further integration and to suggest broad methods of attack. At the end of the August 1991 Environmental Trends and Policy Workshop, participants identified the subject of environmental policy integration as a pivotal issue for improving success of any organization's environmental program in this era of heightened consciousness and regulatory strictures. The participants recommended it as one of four over-arching concerns meriting special study by the Army.

1.3 Approach

The effort has two parts reflected as two sections of this paper. Section I, provides an introductory, longitudinal review of inspections and audits by respected organizations and some recent anecdotal studies to put the observations and suggestions found in Section II in a longer historical context. This brief treatment sets the stage as an aid to the reader in making judgements about SAIC's proposals. Section I searches for areas of validity to:

a) Show where current efforts toward policy integration seem well founded and beneficial (to Army mission and compliance success) and;

b) Highlight initiatives through which further gains might be made.

Section II, an independent study by SAIC looks at the basic Army approach to environmental management and the tools by which the Army attempts to have environmental policy diffuse throughout its structure and activities. It also looks at societal trends and methods by which several private entities are having enhanced success in combining their business and environmental pursuits. Then, it proposes ways for the Army to integrate environmental policy in a more pervasive fashion.

2. Introduction

2.1 General Remarks

The Army established a formal environmental management program implemented by Army regulations shortly after passage of the National Environmental Policy Act (NEPA) in 1969. During the past 23 years, external pressures for voluntary improvement and regulatory compliance have mounted steadily. Traditional models for managing a military department provided the models for organizational structures and procedures for managing the Environmental Program. They strained with mixed success to fulfill expectations that environmental problems would be avoided or resolved with a minimum of interference with the defense mission. Army leadership at all echelons seemed to expect the engineer stovepipe to find ways to accomplish all needed environmental problem avoidance and resolution without troubling anyone else to participate, either directly or indirectly.

NEPA made a broader policy statement; one that not only voiced a noble purpose, but specified:

> It is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy to improve and coordinate Federal plans, functions, programs, and resources. ...
>
> The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.

The momentum of tradition conflicted with those concepts. Across the entire spectrum of societal activities (including government), individuals and agencies struggled with the dilemma of how to conduct their legitimate, normal missions at full effectiveness. The tendency was to point to or establish an organizational entity that would "do" the environmental program. Few people had the knowledge to realize the pervasiveness of environmental relationships with their "primary" work, or, the NEPA chartered freedom to change their mission paradigm to include environmental protection, enhancement, and compliance. Certainly, environmental standards had applied before, but they had been very much the province of a few natural resource experts and engineers charged with keeping things fixed as everyone else went about their separate businesses.

In 1992 Dr. Lynton K. Caldwell, a key thinker in the drafting and clarification of NEPA, discusses the tendency of federal agencies to hire external consultants to prepare environmental impact assessments and statements (EA and EIS):

> This practice defeats a basic purpose of NEPA, which was to build environmental awareness and responsibility into the *ethos* of all agencies—in effect, to redirect policy through procedural reform. Even though agency personnel reviewed a consultant's draft environmental statement (EIS), the consultants, not the agency personnel, did the analysis and thinking that went into the EIS. *Genuine program integration can only occur within an agency and in the minds and perceptions of its leadership.* Expert consultants may be necessary and valuable adjuncts to the application of NEPA to agency programs, but the relationship should be one of advice—not of agency abdication (Emphasis added).

Undue reliance on a small expert group within an organization would seem to similarly inhibit intended integration and ethos development. NEPA was and is intended to be the cornerstone for environmental protection by integrating environmental considerations into federal decision making processes.

2.2 The Societal Connection

That supposition of "separation of environment and state" could not long endure, and it did not. Aside from the activities of major advocacy groups, a few significant special issue flurries and a smattering of local actions of short duration, the nation as a whole faced the same dilemma and approached it obliquely. Lukaszewski, in three speeches on different but overlapping subjects addressed the impossibility of treating environmental issues as image problems to be resolved by publishing good news (Lukaszewski, 1990, 1991, 1992). He stressed the necessity of admitting problems (before public discovery, if possible) and letting the public and other agencies help with problem solving. Above all, he stressed the absolute necessity of a whole organization "team" (whether a firm or a government agency) to *be* a real team, an informed team, ready with practical plans for avoiding, finding and fixing its environmental problems. Even then, Lukaszewski admits that winning the project, the compliance negotiation or the image remains a fiercely competitive affair.

The Army Science Board's Final Report of the Ad Hoc Subgroup on Toxic and Hazardous Waste Management describes the Army's vast land and facilities holdings and states the Army to be, "the nation's largest industrial manufacturer" (Martin, et al, 1990). This places the Army in an unique situation vis-à-vis public attitudes. In 1991, Chemecology reported the results of a poll done for the Advertising Council, Inc. and the Department of the Interior's *Take Pride in America* program. The basic question explored was: Who should lead in solving environmental problems (government, corporations, consumers or citizens) in six areas: waste disposal, air quality, natural areas, water quality, endangered species, and public area upkeep? Respondents believed that government should lead in solving environmental problems in five of the six areas (corporations should lead in air quality, but government should follow closely). Only for endangered species and public area upkeep did respondents think the populace at large should have a greater role than corporations, but the difference was rather modest. One infers from the results that the public would have particularly high expectations for the U.S. Army which falls into two categories: government and the equivalent of the largest manufacturing corporation.

2.3 Environmental Obligation and Integration Issue Recognition

Through two decades, the Army has worked to find and apply resources and to identify ways to proactively address the growing flood of environmental requirements. Despite great efforts and successes in an absolute sense, overall success has been elusive, as measured by such tools as:

- Statistical reports
- Compliance enforcement actions
- Continued public suspicion
- Inspections and audits
- Personal knowledge of managers and executives whose careers encompass those years.

formed the high level Senior Environmental Executive Council (SEEC) in 1989 as a multi-function coordinating body supported by working groups composed of representatives from a wide variety of Army staffs. Those bodies continue to bring together many functions for both communication and action. This has created formal, visible links that did not previously exist. A practical result is an increase in the diffusion of environmental policy out of the engineer stovepipe and integration into other functions as an integral, relevant component of those functions' policies. That is a phenomenon implicit in NEPA. It also validates one of ten strong trends EcoSource asserts are becoming rivers (rather than trickles of movement), based on their continuous monitoring of items in print: "Environmentalism will be less of a subject and more of a way of life. ... Things now referred to as 'green' will revert to their normal colors as consideration for the environment becomes so thoroughly entrenched in laws, policies and attitudes that we no longer have to be reminded of the connection to nature" (EcoSource, 1991).

Key questions for the Army are:

- Is the Army making progress fast enough?
- Does the trend show a productive direction and intensity?
- Are there quantum leaps that, if taken, will result in quantum gains?

3. Discussion

3.1 The Issue

Those three questions are implicit in the workshop recommendation to examine concepts of integrating (diffusing, imbedding, infusing, or spreading) basic environmental policy into the formal and operative informal policies of all elements of an organization, with specific focus on the Army.

Clearly, much progress occurred over the years. Yet, a fourth question remains to be addressed: Is there evidence that a problem of insufficient integration existed and continues which justifies further concern?

The rest of Section I mainly addresses this question of sufficiency of integration and ties the resulting observations to the SAIC analysis and suggestions found in Section II.

3.2 Historical Indicators

3.2.1 Audits and Inspections

Audits and inspections provide a rich source of information about organizations not directly tasked with environmental program management, yet are conducting mission activities that create environmental impacts or are exercising decision making authority with direct impact on environmental management. The General Accounting Office (GAO), Department of Defense Inspector General (DoDIG), Army Audit Agency (AAA) and Department of the Army Inspector General (DAIG) are four such independent sources. Review of 17 of their reports from June, 1983 to November, 1991 provides the basis of most observations presented in this subsection. Prior reviews could not be located without major effort. Though there had been a few earlier studies containing environmental components, if not focusing totally on environmental management, the 1983 to 1991 series provides sufficient information from which to draw a rather consistent picture. Nor does emphasis on hazardous material (HM) and hazardous waste (HW) raise obstacles to drawing valid inferences, because related issues, requirements, procedures, and legal and physical hazards intrude into almost every corner of the Army.

Twelve of the 17 audit reports reviewed (see Bibliography) deal with HM and HW management. Two relate to activities with environmental impacts, but with no direct environmental component in their missions. Three addressed a variety of environmental programs.

Some threads of findings are obvious by their continuity, others by their absence. Those with continuity include:

- Weakness of command emphasis (with specific mention of mid-levels within each echelon)
- Inadequate resource allocations (money and people) for formal programs, even during periods of relative affluence
- People in non-environmental functions not identified to be aware of and serve as proponents for environmental aspects of those functions
- Inadequate training at all levels for both uniformed and civilian personnel for both awareness and specific tasks/responsibilities
- Insufficient information flow to keep people current about their particular obligations and the various risks they incur through ignorance and non-compliance.

These problems and findings persist despite identifiable actions taken at a high level to alleviate them. For example, department secretaries and chiefs of staff have issued unequivocal statements of command emphasis. And, establishment of the special and very powerful programming and budgeting tool called Management Decision Package VENC (MDEP VENC) with supporting environmental importance criteria for Classes I, II and III should have greatly facilitated resource flows.

One DoDIG audit found inadequate personnel in quality and quantity to determine corrective actions and to do time and cost estimates needed to implement Environmental Compliance Assessment System (ECAS) findings (DoDIG, 1991). The report observes that success in ECAS is difficult without people to do the daily operational, regulatory and corrective work. DoDIG found dedicated individuals, but responsibilities beyond their reasonable span of control. The report states, "Without continuous and consistent implementation of environmental corrective action and *environmental oversight*, the environmental compliance posture is vulnerable to serious deterioration" (emphasis added). ECAS is a cross-functional, or multi-stovepipe, self-examination process in that it looks not only at regulatory compliance throughout an installation but also at management practices operating behind the scenes to help or hinder compliance. The report implies that installation environmental management is unable to either capitalize on the concrete outputs of ECAS or to provide the cross-functional oversight needed to aid all functional entities in satisfying their particular parts of the environmental pie. Other reports also directly or indirectly identify personnel as a weak link.

Training (as a key to avoiding environmental damage, costs of environmental repair, and personal and legal risks) appears as a frequent issue in audits. Programs are underway to institutionalize environmental training for uniformed personnel and to expand it for a wider range of civilian personnel. Training must come out of and be supported by a number of stovepipes, like finance, training, logistics, legal, medical and engineer/environmental. Absorption and application of training can only occur to the extent each person receives and understands *policy relevant to their job.*

A large proportion of the audits and inspections had HM and HW as central topics. They frequently remarked upon a weak flow of product and process information essential to the preservation of health and safety and to the avoidance of potentially destructive accidents in terms of both property and the environment. This is an important intersection point for a number of stovepipes:

- Acquisition
- Environmental management
- Facilities management
- Force planning and stationing
- Industrial hygiene and medical services
- Legal services
- Maintenance and supply
- Morale and welfare
- Personnel
- Readiness training (including field maintenance)
- Research and development
- Safety

- Specialized training
- Transportation

Definable risks accrue to individuals from the lowest rank to the highest official. If such a problem can be shown for a subject of direct personal importance to individuals and in the arenas of HM and HW, which are high on the list of public concerns, a reasonable conclusion is that similar or worse recognition problems exist for topics of more remote concern.

Conspicuous absence of an area of discussion in audits also carries a message. While various reports discussed a few of the stovepipe functions listed in the preceding paragraph, the coverage was sparse and inconsistent. Engineer management of environmental programs (including policy issuance) received considerable discussion, as did safety, acquisition, and disposal operations. The following remarks are not meant to be disparaging of the auditing agencies, which have repeatedly highlighted systemic issues hindering development of more disciplined environmental programs, but to show the power of tradition and culture in perpetuating narrow vision. Compared to their potential as sources of significant environmental damage and embarrassment to the Army, environmental aspects of areas such as the following received little or no audit/inspection attention over the years:

- Communications training and operations
- Comptroller decisions
- Contract content and monitoring
- Field maintenance
- Materiel research & development, acquisition, and deployment
- Morale and welfare programs
- Personnel and manpower standards and procedures
- Range operations (firing and maneuvering)
- Readiness training (other)
- Training doctrine and materials
- Vehicle management (emissions)

One AAA report does provide many examples of various functions breaking good practice and rules, but from engineer and logistics staffs only (AAA, September, 1991). The wide variety of actors and flaws involved indicates a lack of real integration of existing HM and HW policy into all levels of these two staff functions. Again, one is led to infer that less directly affected staffs are likely to pay even less attention to integrating HM and HW policy and other environmental policy into their functional stovepipe policies. AAA developed this review by analyzing 28 audits, many of them single installation reports not evaluated for this paper. AAA did point out general environmental program issues, some of which are:

- Neither major Army commands nor installations adequately organized or staffed themselves to make environmental programs be effective. Organization is more important than funding alone
- Environmental programs took more than proportional staff and funding cuts in the past

- Environmental, medical and safety policies were not sufficiently integrated to provide coherent local programs
- The Commander's Guide to Environmental Management is evidence of encouraging integrated behavior, but does not in itself show integrated policy
- Class I funding priority establishment represents policy integration of legal liability as a criterion in funding policy
- Motor pool personnel are not trained to manage the chemical substances they use
- Suggestion/Incentive program too inflexible to accept good, but off-beat, ideas when non-traditional environmental benefits may be obtained
- Materiel specifications do not adequately address substance substitution criteria
- Manuals upon which training is based are not revised to incorporate environmental elements.

These points are indicative of mismatches between broad policy at the top, as interpreted by AR 200–1, Environmental Protection and Enhancement and AR 200–2, Environmental Effects of Army Actions, and policies actually operative at other points in the Army, both laterally and vertically. Many segments of the Army outside the environmental management stovepipe have contributed to the creation and perpetuation of the foregoing list of weaknesses. Had their functional policies fully matured environmentally since 1970, the weaknesses would largely have faded away.

Additionally, detailed reading of a sampling of reports made available by AAA, showed audits and inspections that did not include environmental questions; though they easily might have, owing to the audits' stated purposes. For example, a Fort Hood audit of range operations provided an opportunity for the AAA to probe relationships between range management and range resource management to determine how well Fort Hood was sustaining the basic natural resource that supports training realism and safety (AAA, 1985). However, the concept was not discussed. Planning, scheduling, and maintaining ranges, three foci of the audit, should have addressed the land and vegetation, two vital components of productive ranges. Concepts of Integrated Training Area Management (ITAM) had been researched, field tested, and released for technology transfer before 1985 by the U.S. Army Construction Engineering Research Laboratory. Thus ITAM existed as a tool to harmonize use and sustainment factors in range management and to provide detailed criteria for assessing such issues, if needed before the audit.

3.2.2 Anecdotal Information

In the latter half of 1991, Mr. R. Stine, AEPI Major Command Fellow and Headquarters Forces Command environmental expert, obtained information from a diverse sample of continental U.S. Army installations for several research purposes, one being to assess systemic issues influencing environmental program effectiveness. Data came from interviews and documentary reviews. His results paint a picture quite similar to that derived from the analysis of audits. A reader might be tempted to discount hearsay information compiled from major command and installation sources, especially when it deals with points clearly of selfish interest to the speakers. The importance of the information obtained by Mr. Stine is that it provides recent verification of continued practical effects stemming from weak integration of environmental policy into other policies. Summaries of the high points of his work are:

- Lack of environmental integration, as evidenced by weak life cycle integration of environmental concerns for weapons systems; weak environmental impact analysis compliance; and attitude that environmental considerations are unrelated to the Army mission.

- Insufficient guidance on how to implement federal/state/Army regulations and policy, especially new requirements, necessitating installation discovery to solutions on their own.
- Need for a single environmental arbiter to resolve: ill-defined roles of the many players; duplication of functions; failure to accomplish some requirements; breaking of the chain of command; and uncoordinated environmental policy, decisions and actions.
- Inability of the personnel system to understand and support the peculiar nature of environmental requirements and needed expertise.
- Lack of manpower (type and amount), as shown by: about 50 percent of Notices of Violation being for administrative failures, which arose from inadequate ability to handle the detailed work; paucity of proactive behavior; and inability to use even the available funds wisely.

The parallels between Mr. Stine's findings, and prior audits and inspections by disinterested agencies, as discussed in Section 3.2.1, are obvious.

The point raised about insufficient guidance is a recurrent theme in the audit and inspection reports and at environmental meetings. It, too, can be read as a possible indicator for the status of policy integration. Central policy in the form of AR 200–1 and AR 200–2 may have shortcomings identified by the audits and inspections, but it does state the basic intents and directions to be used by environmental entities, non-environmental entities, Headquarters Department of the Army, and subcommands at many levels. One can propose the following questions, any combination of which could be true and still contribute to defining or resolving questions of integration of environmental policy into other Army policies:

- Do various functions, stovepipes and levels of command fully integrate environmental policies into other policies? If not, why not: lack of understanding, lack of will, lack of personnel? If yes, why are the results inconsistent?
- Do the mismatches arise as a matter of people misunderstanding the degree of decentralization intended for all aspects of the Army, including environmental management? Decentralization implies that entities, alone or in concert, will design appropriate patterns for reacting to their specific local, state and regional situations. Centralization implies that most thinking will be done centrally, which is not part of the "commander's army" concept.

Neither this paper nor the SAIC report can presume to investigate these questions, but can offer the observation that there may be hidden impediments to the seemingly straightforward solution of telling people to integrate policy and having it happen.

3.2.3 External Trends

Top corporations are integrating environmental policy into their general policies in significant ways well beyond public relations aspects. Their product lines, production facility designs and decision processes are affected. EcoSource says, "Major corporations in all sectors have appointed a senior executive to handle environmental affairs" (EcoSource, 1991). Integrating environmental policy into other policies is a NEPA concept spilling over into the private sector. Nichols revalidates those trends in his discussion of large corporations in general and for ten specific ones (none referred to in the SAIC study) (Nichols, 1992). He states, "In many of the larger firms, environmental affairs directors are corporate officers who have a direct input in major capital investment decisions."

3.3 Observations on the SAIC Study (Section II)

Depending upon the reader, the SAIC study report may appear to be quite radical or merely middle of the road, modern board room thinking. In either case, it offers a range of ideas to consider in exploring issues involved in and arising from integrating environmental policy into other operative policies, with special emphasis on the those that might fit an organization of the size, complexity and environmental impact of the U.S. Army. The report discusses the Army context and suggests a three tier approach to accomplishing integration:

- Application of NEPA principles as a basis for *leadership*
- Demonstration of commitment through *communication*, using predominantly existing mechanisms for coordination and information management, such as the SELC, SEEC and the pending environmental strategy
- Implementing *integration* using the "success elements" model productively applied by the private sector.

The third point deserves clarification. SAIC evaluated successful environmental management innovations by private firms to identify the critical factors for success. The study suggests how those can be translated into U.S. Army action.

3.4 The Life Cycle Army

The U.S. Army War College describes three basic functional organizations: traditional, resourcing and life cycle (Tinsman, 1991). Because there seems to be significant discussion of life cycle principles within the Army regarding many aspects of mission accomplishment, Table 3-1 provides examples of environmental management activities and requirements in the right hand column opposite to the related life cycle Army concept components. Few or no functions within the Army appear to be untouched by relationships with legislated or common sense environmental requirements owing to environmental impacts on their missions or their missions' impacts on the environment.

Table 3-1 Life Cycle Components and Sample Environmental Relationships

Force Development	
Threat Appraisal	Natural conditions, laws, regulations
Design	Prog. mgmt. structure, envir. strategy
Manpower Requirements	Staffing standards and numbers
Equipment Requirements	R&D, acquisition
Faces	Technical qualifications/credentials
Acquire	
Access People	Envir. mgmt., MOS/job related
Procure Equipment	Pollution prevention, NEPA, compliance
Buy Real Property	NEPA, natural/cultural resources, mission suitability analysis
Train	
Initial Entry	Envir. ethic/awareness
Speciality	Technical requirements within MOS
Basic Officer	Envir. ethic/awareness, certification
Distribute	
Assign People	NEPA, mil/civ assignments, envir. staff
Allocate Equipment	NEPA
Develop	
Alter Equipment	Pollution prevention, material substitution
Unit Training	Envir. ethic/awareness, tech. info/methods
Promotion	Potential legal impacts of noncompliance
Professional Training	Exec. mgmt., tech. skills, envir. specialities
Improve Facilities	Pollution prevention, waste mgmt., range realism/safety
Deploy	
Move Equipment & Materiel	NEPA (all envir. media), hazardous materials
Move People	NEPA
Sustain	
Maintain Facilities	Compliance, contamination restoration, range maintenance, public relations
Repair Equipment	Compliance, waste minimization, hazardous material use
Repair People	Medical and food waste, recreational natural and cultural resources
Repeat Core Training	Envir. ethic/awareness, mgmt./prof. update, tech./MOS update
Separate	
Release People	NEPA
Release Equipment	NEPA, hazardous material/waste, other waste
Release Facilities	NEPA, BRAC, site restoration, hazardous material/waste, landfill closure, natural/cultural resources

4. Conclusions

This section set out to evaluate the extent to which the Army integrates environmental policy into the full range of its management and operating policies. The objective of the evaluation was to determine whether and how much concern should be accorded to the SAIC analyses and recommendations for change. Four concluding points can justifiably be made on the basis of the preceding discussions:

- A significant body of information from reliable sources shows that integration of environmental policy into the other policies by which the Army accomplishes its many, diverse functions has met and continues to meet impediments
- Further, those impediments demonstrate durability, in spite of the legal injunctions of NEPA and two decades of programmatic effort
- Evolving management philosophies in the private sector, coupled with evolving management philosophy within the Army imply that reevaluation of how the Army accomplishes its pervasive environmental obligations is appropriate
- The SAIC study presented in Section II deserves serious consideration for the value its ideas offer for opening discussion with fresh approaches and for resolving the issues described above.

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Appendix A

Environmental Trends and Policy Workshop
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SECTION II

INTEGRATING ENVIRONMENTAL POLICY INTO OTHER ARMY POLICIES

BY

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

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Section II Contents

EXECUTIVE SUMMARY

As part of an ongoing effort to analyze environmental trends affecting the Army during this decade and beyond, the Army Environmental Policy Institute (AEPI) sponsored an Environmental Trends and Policy Workshop, on August 19 - 20, 1991, where participants from various Army agencies, the AEPI, the EPA, universities and private industry identified emerging environmental trends that will impact the Army and its operations by the year 2000. An analysis of these trends revealed several key areas of immediate concern. Integration of environmental policy into other policy areas was identified as one of four key environmental trends selected for further study. Three questions also emerged from the workshop which are central to this trend:

- How can the Army incorporate an environmental ethic across all functional areas?
- How should the Army institutionalize methods to ensure that environmental awareness is adopted across all missions and functions?
- How can the Army ensure that the policies developed at Department of the Army level will be implemented across all Army functions?

Science Applications International Corporation (SAIC) was engaged to conduct an initial investigation into this trend and to address the questions emerging from the workshop. In researching this topic, SAIC profiled the environmental management functions of several corporations in the private sector to reveal elements used in the private sector to achieve successful policy integration. The following elements were common to the success of these corporations:

- Centralized environmental organization to coordinate policy dissemination and integration
- Commitment demonstrated by allocation of sufficient personnel and resources to achieve objectives
- Coordination between affected internal organizations (purchasing, logistics, operations, management)
- Prioritization based on risk assessment
- Staff assistance (e.g., with special required functions such as TRI reporting)
- Database management
- Employee participation and incentives
- Training
- Cooperation with other external affected entities
- Public relations

After reviewing Army organization and procedures for policy development and integration, the success elements from private industry were studied to see which might have application for integrating Army environmental policies with other policies and functions. Conservation of Natural Resources was selected by SAIC to demonstrate how the Army can apply the private company success elements to identify specific targets for improved policy integration.

In related work for the Defense Nuclear Agency, SAIC has reviewed other business concepts which have application for integrating environmental policies into other policy areas. The **core competency concept** is a useful business planning tool that can help the Army capitalize on its existing strengths and adapt mission capabilities to meet changing environmental needs. The **concept of strategic intent** is tied to the idea of core competencies and policy integration, and could also be adapted to Army environmental planning. Other business concepts that may be useful for environmental planning include **scenario analysis, maximizing value added as a decision criterion, and the formation of strategic alliances.** These business planning concepts incorporate many of the success elements mentioned above, which can be used in parallel to develop an overall strategy for environmental policy integration.

Potential obstacles to successful Army environmental policy integration were identified during the SAIC review. Three emerging areas that pose both challenges and opportunities for improving the integration and implementation of Army environmental policies are:

- Cooperation with affected external parties as an approach to environmental problem solving.
- Changing Army missions which may involve the Army in emerging global policy concerns such as ozone depletion, global warming and environmental catastrophes.
- Changing world conditions and Army programs likely to be affected such as:

  —potential noncompliance with environmental permits for operating facilities during rapid mobilization

  —the Installation Restoration Program

  —the Base Realignment and Closure Program

  —OCONUS environmental compliance

In each of these areas, there are exciting opportunities for integrating environmental policy with the forces of change affecting other policy areas in the Army. A recent example is the Army's participation in the Chesapeake Bay Agreements. These Agreements demonstrate how internal and external environmental policies can be integrated. The Army has successfully integrated external environmental policy with the policies of other affected federal, state and local groups while internally integrating environmental policy with other policy areas such as training, construction, industrial operations, natural resource management, and procurement. This example may be worth emulating in the future.

The NEPA statute provides both a substantive and a procedural basis for environmental policy integration across different functional areas. However, the integration of environmental policy with other policy areas may require behavioral and cultural changes within the affected organizations that manage and control those functional areas. Major considerations include the relative priority of different functional areas as they contribute to accomplishment of the Army mission. Since benefits may not be immediately apparent, the process should seek methods to conceptualize long term benefits. The most effective method to achieve change may be to draw non-environmental functions into the environmental decision making process through delegation of policy making tasks. This requires identifying incentives for change and social and cultural barriers that act as disincentives.

Army environmental leaders have recently established several initiatives that facilitate policy integration. Examples include the Senior Executive Environmental Council (SEEC) and the Senior Environmental Leadership Conference (SELC). These forums offer improved guidance, coordination and implementation of environmental programs across functional areas at the Department of the Army level. They provide an exchange of ideas, and function as a voice for guiding policy direction. They also demonstrate the commitment of Army leaders toward integrated environmental policy. The Army Environmental Strategy, currently under development, offers further evidence of environmental policy integration and when approved, will provide an important framework for policy implementation. New database management tools have also been developed by the Army that can improve communication and awareness, data exchange, and dissemination of environmental compliance information within the Army, if used to the full extent of their capabilities.

The NEPA process, the commitment of leadership, and success elements from private industry, can be used to form a comprehensive strategy for policy integration. Together they provide a three tier approach to policy integration based on leadership, communication, and a framework for policy implementation. The first tier would employ the principals of NEPA as the regulatory foundation and rationale for environmental policy integration. The second tier would demonstrate leadership commitment through organizations such as the SEEC, the SELC, and the Army Environmental Strategy to promote an understanding of environmental ethics within other functional areas. Automated systems for data management and information exchange would serve to improve environmental awareness across all Army commands. The third tier would borrow success elements from the private sector to guide Army environmental policy integration efforts where applicable. Adoption of the three-tier approach may also help the Army respond creatively to emerging global policy concerns and changing world conditions.

CHAPTER 1 INTRODUCTION

As part of an ongoing effort to analyze environmental trends, the Army Environmental Policy Institute (AEPI) invited representatives from many organizations throughout the Army to participate with others from academia, regulatory agencies, and private corporations in a workshop to identify environmental trends affecting the Army today and in the future (6). Workshop participants identified the integration of environmental policy into other policy areas as one important trend affecting the current and future success of the Army Environmental Program. This paper is an initial investigation of this trend based on a review of the literature and discussions with environmental managers at various levels within the Army.

The need to integrate environmental policies also became apparent as the Army evaluated the status of its environmental policies (1), (2) and concluded that environmental policy implementation should involve decision makers from all affected functional areas. This conclusion led to three important questions regarding the success of policy integration:

- How can the Army incorporate an environmental ethic across all functional areas?
- How should the Army institutionalize methodologies to ensure that environmental awareness is adopted across all missions and functions?
- How can the Army ensure that the pollution prevention policies developed at Department of the Army level will be implemented across all Army functions?

The methodology used to investigate the trend and answer these questions was to; review background literature and Army policy documents applicable to the issues, identify areas of concern and future trends specific to the Army, discuss these issues and trends with environmental managers in the Army, research and identify successful approaches used in the private sector, and develop options and suggestions for policy integration based on information gained from all of the above. In succeeding chapters, this paper presents the findings in the following framework:

Statement and Analysis of Trend (Chapter 2) – Chapter 2 looks at the origins of policy integration, nationally, and within the Army. Examples of successful policy integration in the private sector are reviewed and success elements are identified that can be adapted to achieve policy integration in the Army.

Current Army Policy (Chapter 3) – This chapter provides background on how Army environmental policies are currently developed and discusses obstacles to integrating environmental policy into other policy areas. The chapter then presents examples of how the private industry success elements can be applied to one specific policy area, and involve other functional areas to enhance integration.

Future Perspectives (Chapter 4) – Significant trends are emerging that may influence the successful integration of Army policies. Chapter 4 identifies three of these trends, their potential impact on the Army, and opportunities for the Army to assume environmental leadership by integrating the forces of change with Army environmental policies.

Significance of Trend to the Army (Chapter 5) – Successful integration of environmental policies with other policies areas is also influenced by a motivation for involvement. This chapter identifies affected

functional proponents, discusses planning strategies and Army-wide benefits of policy integration, and suggests incentives for policy integration.

Options and Suggestions (Chapter 6) – This chapter discusses options and suggests methods that could be used for integrating environmental policies throughout other functional areas in the Army.

Final Comments (Chapter 7) – This chapter provides a brief synthesis of the significance of policy integration to the Army.

CHAPTER 2 STATEMENT AND ANALYSIS OF TREND

This chapter discusses background issues related to policy integration and uses examples from the private sector to identify key elements of successful environmental policy integration.

2.1 Statement of Trend

The National Environmental Policy Act of 1969 (NEPA) (3) mandated review of all major actions by federal agencies to determine their impact on the environment. The Act did not limit this review to certain activities or functional areas such as construction, transportation, industrial operations and the like, but, all major actions. These actions may have a significant impact on environmental quality, cultural resources, historic and archaeologically significant areas, and natural resources such as forests, water supplies, fisheries, wildlife or rare and endangered species. Since its inception, NEPA has stood as the origin of national policy for integration of environmental considerations. In recent years, multi-disciplinary environmental managers, with a focus on policy integration, have realized that environmental policy is crystallized from many areas of interests and scientific fields, and the concept is now spreading horizontally across all aspects of society as originally intended by NEPA. Army leaders have also begun to recognize this trend.

The Secretary of the Army made a commitment to the goal of environmental policy integration in a memorandum dated July 17, 1990, (4) wherein the following guidance was provided on environmental management:

- "Army operations will be environmentally sustainable, meeting current needs without compromising the integrity of the environment for future generations."
- "Environmental considerations will be integrated into all Army activities. Resources and training will be allocated to protect our environment."
- "All Army installations will meet or exceed environmental standards."

This concept was further identified as a major concern at the Army Environmental Trends and Policy Workshop, conducted by the Army Environmental Policy Institute on August 19 - 20, 1991, (5), (6) where participants from various Army agencies, the AEPI, the EPA, universities and private industry identified emerging environmental trends that will impact the Army and its operations by the year 2000.

Rosenbaum (2), observed that a key precept of successful environmental policy integration will be to "anticipate the routine involvement of more disciplines than are currently active in environmental decision making." Assimilation of environmental concerns into Army policy development will require increased involvement of numerous functional areas that will be affected by increased environmental policy implementation. These functional areas might include:

- Health and safety
- Physical plant operation and maintenance
- Procurement
- Materiel development and acquisition
- Land use management

- Logistics
- Transportation
- Research and development
- Financial management, planning and programming
- Public affairs
- Legal affairs
- Training and readiness.

Principle planning elements in each of these areas might include personnel and fiscal resources, communication, organization and management. This paper discusses the current status of these elements, and identifies possible options for enhancing environmental policy integration.

2.2 Integration of Environmental Policy into other Policy Decisions in the Private Sector

2.2.1 Background

Within the past 20 years, the private sector has significantly increased its focus on environmental compliance. This has been influenced by:

- A flood of increasingly stringent and comprehensive regulations
- A changing standard of liability as interpreted by the courts under CERCLA (strict, joint and several) for past hazardous waste disposal practices
- An increased imposition of civil fines calculated to remove any cost savings obtainable through noncompliance, and criminal penalties (including prison terms) for environmental offenders
- A changing public perception of environmental problems and industry culpability.

As a result, environmental compliance in the private sector generally changed from an ancillary activity to an integral and unavoidable cost of doing business, and the corporate response to environmental concerns shifted from a reactive to a proactive mode.

Increased assimilation of environmental policy concerns into the overall corporate policy making process is driven by three factors. The first is reducing potential corporate liability. Environmental liabilities entail potential unpredictable and unquantifiable expenditures in terms of fines and penalties, adverse public relations, hostile relations with environmental regulatory authorities, potential future expenses for cleaning up previously disposed of hazardous wastes, and potential personal injury and natural resource damage suits.

The second factor is the desire to reduce operating costs through pollution prevention. This results in less waste disposal (generally a significant fixed cost of the production process) and, in many cases, an increase in production efficiency. Some waste streams provide the feedstock for other manufacturing processes. Recognition of this fact has resulted in the creation of successful industrial waste exchanges.

The third, and most recent factor, is the benefit of marketing environmentally friendly products to a consumer market that is becoming increasingly aware of environmental concerns.

In the 1970s and early 1980s, most corporations responded reactively to specific regulatory requirements for single-media "end-of-pipe" controls. With the shift in regulatory focus in the late 1980s and the 1990s to cross-media and pollution prevention issues, many private sector firms adopted a more proactive approach to comprehensive pollution management and recognized the need to integrate environmental policy into other corporate policies. Many factors influenced the success of this integration effort and caused corporations to make it a permanent part of their policy development process and organizational structure. These included:

- Corporate attitude towards environmental regulation
- Corporate sensitivity to adverse public relations over environmental matters
- Corporate size and available resources
- Degree of centralization of the policy making process
- Employee training.

The first two factors depend on commitment at the highest managerial levels within a corporation. The second two factors are dependent on the inherent nature of corporate business. Larger companies are more likely to have the financial resources available to maintain dedicated environmental staff. Although the degree of centralization is an element somewhat less influenced by size and resources, larger organizations do have a greater opportunity to focus all aspects of corporate environmental concerns under a single management structure at the headquarters level than do the smaller organizations. Training and internal/external dissemination of information, critical to successful environmental policy integration, pose a greater challenge to larger organizations because of the greater size of the target audience.

Profiled below, are five companies that successfully integrated environmental policies into their corporate policy development process. Section 2.2.2 profiles the approach to hazardous wastes management at three large companies. Section 2.2.3 summarizes pollution prevention efforts at one large company and one small company. Examples of both large and small companies are used to provide an analogous comparison with the centralized organizational structure of the total Army and the decentralized operation and management authority at installation and unit levels.

2.2.2 Hazardous Waste Management

This section summarizes interviews conducted with management officials at three large corporations (Ford Motor Corporation (7), International Paper Company (8), and Amoco Corporation (9) regarding their corporate hazardous waste management procedures. The interview topics included these five organizational elements: environmental approach to regulation, community involvement, organization size, management structure, and employee training/dissemination of information.

All three companies are large organizations with substantial resources. They all have heavy industrial plant operations which handle large quantities of hazardous materials and generate significant quantities of hazardous waste. All three companies are subject to environmental regulations and potential environmental liabilities and all possess a corporate commitment to compliance with environmental

regulations. Each of these corporations have integrated environmental policies into overall policy development, and have established a centralized environmental program office that establishes policy and advises individual plant managers. The three organizations differ in their sensitivity to public opinion, and in their level of investment in employee training and information exchange.

International Paper Corporation

International Paper has an Environmental Affairs Office that tracks federal and state regulatory requirements using the assistance of trade groups such as the American Paper Institute. This Office disseminates compliance information to their operating plants, provides technical consulting services for operating facilities, tracks compliance, and conducts technical studies as needed. The Environmental Auditing Service, a subunit of the Environmental Affairs Office, periodically conducts audits of operating facilities to evaluate compliance.

The Environmental Affairs Office does not provide a special environmental training program. Instead, environmental training occurs within the scope of other routine employee training. Among the three corporations profiled, International Paper appears to have the least extensive program for disseminating information and training. However, the Environmental Affairs Office recently completed a training program for the senior environmental managers of each facility. The company also undertook an effort to have employees identify environmental protection opportunities as part of the Total Quality Management (TQM) program for improving overall productivity.

International Paper had no formal community outreach program until faced with adverse publicity over environmental issues. The company considers that their programs are now very effective in responding to adverse publicity and improving relationships with surrounding communities.

Ford Motor Corporation

The Ford Motor Corporation (Ford) has also established a central Environmental Quality Office as a focal point for environmental issues. The Ford Environmental Quality Office conducts its own reviews of new federal and state regulations, and has developed a comprehensive approach to transmitting this information to individual plant environmental managers. This approach is multi-faceted, using bulletins, newsletters, and special assistance tools such as tailored computer programs for meeting new Toxic Release Inventory reporting required under the Superfund Amendments and Reauthorization Act (SARA) (10). Additional components of Ford's information dissemination program are its Toxicological System Database that screens and approves chemical products that are introduced into the workplace, and a Waste Minimization/Pollution Prevention Committee that assesses the feasibility of substituting or eliminating certain materials from the workplace. There are also employee involvement groups that meet regularly to discuss environmental issues. The Ford Environmental Quality Office meets offsite once a year with environmental engineers from each facility to discuss regulatory requirements and brainstorm new approaches to environmental problem solving.

While Ford relies primarily on the United Auto Workers general health and safety training for employee training, the Environmental Quality Office has produced a number of its own bulletins and videos to assist in the employee training effort. In addition to general health and safety training, employees receive RCRA and other required training as applicable (e.g., contingency plan training). Ford does not have a public outreach program. However, the company has not experienced any significant adverse public relations problems.

Amoco Corporation

Amoco has a Department of Regulatory Affairs which is split between two locations: Chicago, Illinois and Washington, D.C. This allows the Department to effectively serve Amoco's geographically diverse operations. The Department of Regulatory Affairs features an on-line computer system to search and track both state and federal regulations, analyze new regulations to evaluate the potential impact on company operations and determine the appropriate corporate response. Personnel from the Department of Regulatory Affairs participate in trade association committees for the exchange of regulatory information, and conduct periodic compliance inspections of operating facilities. Amoco's legal department reviews all inspection reports. Facility managers, who are primarily responsible for environmental compliance, are required to develop a corrective action plan for problems noted during inspections, and to follow up with progress reports until the inspection team leader is satisfied that the manager has completed all actions necessary to bring the facility into full compliance.

The Department of Regulatory Affairs is also responsible for environmental training, and produces training films and videos through a joint venture with a film production company. Routine monthly health and safety meetings incorporate environmental issues. A Waste Minimization Committee oversees hazardous materials and hazardous waste issues at each operating plant, evaluates the toxicity of new materials, and monitors the volume and disposition of hazardous waste generated by plant operations.

In contrast to Ford and International Paper Company public relations policies, Amoco's corporate policy is to encourage dissemination of information to the public and to invite public participation in plant environmental affairs at the local level. The manager of each operating facility determines the exact nature and degree of public involvement.

2.2.3 Pollution Prevention

The U. S. Environmental Protection Agency (11) profiled successful pollution prevention programs at the Dow Chemical Company and Whyco Chromium, Inc., as examples of success stories at a large and small company, respectively. The following section summarizes the key elements that contributed to successful integration of pollution prevention concepts into corporate policies at these two companies. EPA developed its profiles from interviews with company representatives and a review of internal company documents.

Dow Chemical Company

Dow Chemical Company is a large organization with significant resources and a large number of heavy industrial plant operations. As early as 1984, Dow committed to a pollution prevention policy, outlined in its Environmental Guidelines, (12) which stated that "eliminating or minimizing the generation of waste at the source shall be the first consideration in research, process design, plant operations and maintenance and must be considered prior to other options". In response to scrutiny from a Congressional committee and internal needs to collect and evaluate waste reduction data, the company instituted its WRAP (Waste Reduction Always Pays) program in 1986.

The WRAP program is responsible for integrating the 1984 pollution prevention policy into other company policies. WRAP's goals are to increase management support, establish an award system, compile waste reduction data, and communicate environmental information with both internal and

external target audiences. Dow's organizational approach to environmental policy integration consists of a waste reduction issue manager, a cross-functional waste reduction issue management team, and an "action team" with representatives from each of Dow's five Divisions. This team developed the overall environmental compliance plan for all manufacturing sites. In addition, Dow has a coordinator from each of the five sites who is responsible for developing and implementing the WRAP effort. This individual is responsible for gathering pollution prevention data and communicating pollution prevention issues to other Dow employees and to the public. Dow's Toxic Release Inventory (TRI) numbers are an indicator of the success of the Dow program. Between 1987 and 1989 Dow reduced releases of TRI chemicals by 21% and reduced off-site transfers by 15% (11).

Dow gives each operating facility the freedom to investigate, research and develop source reduction techniques. It has implemented an employee incentive and awards program, and has developed a database tracking system that allows each pollution prevention effort to be followed on an individual basis. As part of its public outreach effort, Dow developed the ChemAware program which provides waste reduction assistance to customers, and advises them on techniques to properly purchase, process, handle and dispose of Dow's products.

Whyco Chromium, Inc.

Whyco Chromium, Inc. is a small specialty chromium plating company in Thomaston, Connecticut with 1990 sales of about $15.4 million (6). Throughout the 1960s and 1970s, Whyco's environmental policies were primarily reactive to regulatory requirements. By 1990 the company had a small centralized environmental staff of seven people, with 15 other staff members involved with regulatory compliance to a lesser degree. In the late 1980s Whyco instituted a pollution prevention and recycling policy that focused efforts on technological research and development to decrease the use of hazardous materials. As part of this effort, Whyco entered into a joint venture with one of its customers, IBM Corporation. The objective of this joint venture was to develop a closed-loop parts stripping process with a goal of zero air emissions and zero wastewater discharge. Foregoing normal copyright ownership, Whyco was able to tap into IBM's significantly greater fiscal resources by signing an agreement that IBM would retain ownership of the new stripping system and would therefore be able to use it elsewhere. In another example of outreach, Whyco works with its customers to implement oil recycling, and to reduce the amount of degreasing needed during parts manufacturing.

2.3 Conclusions: Success Elements from the Private Sector

The profiled companies achieved successful integration of environmental policy with other corporate policy development through creation of a centralized environmental management organization. This organization provided the capability to rapidly analyze environmental laws and regulations, participate and benefit from trade associations, and disseminate guidance and information to operating facilities. These companies demonstrated a proactive corporate commitment to environmental responsibility, and allocated sufficient personnel and other resources to achieve their environmental objectives. In summary, they achieved an integrated, cross-functional approach by communicating and extending policies through the following success elements:

- Centralized environmental organization to analyze environmental issues and coordinate policy dissemination and integration

- Demonstrated commitment by allocation of sufficient personnel and resources to achieve environmental objectives
- Coordinated action between affected internal organizations (purchasing, manufacturing, management)
- Prioritized decision making based on risk assessment
- Improved staff assistance (e.g., with special required functions such as TRI reporting)
- Improved database management
- Improved employee participation and incentives
- Enhanced training tools (videos)
- Improved cooperation with external affected entities to solve environmental problems
- Improved public relations

Based on these elements, this paper will develop options and recommendations for integration of environmental policies into overall policy development within the Army, considering its institutional characteristics, its limited resources, and its organizational structure.

CHAPTER 3 CURRENT ARMY POLICY

This chapter discusses how the Army currently develops environmental policy, how that policy is disseminated, and how existing obstacles affect successful policy integration. Appropriate success elements from Section 2.0 will be used to suggest ways to improve policy integration. The discussion will also address the following questions:

- Where are the opportunities for improved policy integration?
- What success elements identified in the private sector profiles can best be adapted to integrate environmental policies into these functional areas?
- Who are the functional proponents for these areas?
- What are the obstacles to policy integration?

3.1 Current Army Organization for Policy Development and Dissemination

3.1.1 Background

Throughout the 1970s and 1980s, Army environmental policies were primarily reactive to regulatory pressures, occasional adverse publicity, and hazardous waste compliance and cleanup/ restoration needs. Although these areas continue to influence Army environmental policy today, there is increasing recognition of the need for greater awareness of and commitment to Army environmental stewardship responsibilities. This commitment has been reflected in memorandums from leaders at the highest levels in the Army such as the Secretary of the Army's memorandum of July 17, 1990, (4) as quoted in section 2.1.

Environmental policies and guidance are developed, approved, and publicized at Department of the Army level, although, many activities, commanders and civilian leaders at all levels create de facto environmental policy by the programs and procedures that are established and followed within their organizations.

At Department of the Army level, the Assistant Secretary of the Army for Installations, Logistics and Environment (ASA,IL&E) is responsible for all Army environmental programs, including environmental policy. Within the Office of the Assistant Secretary, the Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health provides direction and management oversight of all environmental programs.

On the Army Staff, the Office of the Chief of Engineers has functional staff proponency for environmental matters. Within the Office of the Chief of Engineers, the Army Environmental Office provides the staff support to accomplish these functional responsibilities. The Chief of Engineers also serves as the Commander of the U.S. Army Corps of Engineers. Under the direction of the Chief, the Assistant Chief of Engineers (in the Pentagon), manages all Army Staff environmental functions and works closely with the Office of the Assistant Secretary, the Deputy Assistant Secretary, and the Major Army Commands (MACOMs), to develop environmental policy and to plan, program, and budget the resources needed to execute environmental programs Army-wide.

The U.S. Army Corps of Engineers is a MACOM which manages the Army's environmental restoration program and serves as the DOD executive agent for the restoration of all Formerly Used Defense Sites (FUDS). The Corps of Engineers has many other environmental management responsibilities as part of its civil works activities. The Corps supports all other MACOMs, the Army Secretariat, and the Army Staff in executing environmental programs through its world-wide civil works organization.

MACOMs may supplement the environmental policies established by the Department of the Army (with permission from DA) to meet unique requirements or conditions. The MACOMS also provide implementing guidance and resources to the installations and activities under their control. At installation level environmental programs are executed based on Army policy and guidance received from higher headquarters. The following sections describe how this environmental policy and guidance is disseminated.

3.1.2 Army Regulations

The majority of Army environmental policy is publicized in Army Regulation 200-1, "Environmental Protection and Enhancement" (13), and Army Regulation 200-2, "Environmental Effects of Army Actions" (30). The functional proponent for AR 200-1, and AR 200-2 is the Office of the Chief of Engineers. This office drafts periodic revisions to both regulations, with input from the Major Commands including the U.S. Army Corps of Engineers (USACE) and its field operating agencies (such as THAMA and EHSC), research and development labs (such as CERL and WES) and centers of technical expertise (including Huntsville Division, Omaha Division and others). Occasionally other Department of the Army (DA) functional staff proponents may be asked to draft portions of the revision. The Assistant Chief of Engineers sends the draft document to all DA staff proponent organizations, to Major Commands and to many other organizations and activities for review, comment, and concurrence. This is usually a very time consuming process.

Proponents of other functional areas such as health, safety, transportation and logistics, training, information systems, installation management, legal, public affairs, research and development and others are affected by or can affect environmental policy. Many of these proponents and their field operating agencies and activities review and may provide input to AR 200-1 and AR 200-2. However, since they are not the proponent responsible for these regulations, there may not be sufficient time and/or resources devoted to fully integrate appropriate environmental policy input for their functional area. Individuals assigned to review and comment on environmental regulations may be unfamiliar with DOD level environmental policy documents, and have insufficient understanding of how environmental policies can affect the functional activities within their organization from top to bottom (15). As a result, the revised environmental regulation may be published without incorporating appropriate environmental policies across all functional areas from the standpoint of a fully integrated guidance document. Further, as these same proponents publish their own functional regulations, they may make reference to AR 200-1, and AR 200-2 as the source of environmental policy guidance, without developing environmental policy guidance specific to their own functional area.

AR 200-2 establishes policy, procedures, and responsibilities for assessing the environmental effects of Army actions. It also implements the Council on Environmental Quality, National Environmental Policy Act regulations, Executive Order 12114, DOD Directive 6050.1 and DOD Directive 6050.7. This regulation is the basis for integrated environmental policy decision making in the Army. Every Army activity that has a potential for causing an adverse impact on the natural and human

environment must be assessed to identify any significant environmental effects. These effects will be considered in the decision process along with technical, economic, and other necessary factors.(30)

While the substantive and procedural requirements of NEPA are aimed at avoiding or mitigating adverse environmental impacts, the statute has much broader application for environmental planning aimed at pollution prevention and the avoidance of adverse environmental impact through integrated environmental policies.

AR 200-1 prescribes Department of the Army responsibilities, policies, and procedures to preserve, protect, and restore the quality of the human environment. It incorporates all applicable statutory and regulatory requirements in the areas of research and development; water resources management, air pollution abatement; hazardous materials management; solid and hazardous waste management; noise abatement; oil and hazardous substances spill contingency planning, control, and emergency response; environmental restoration; asbestos management; radon reduction; and other environmental programs (13). The Army revised this regulation most recently in 1990 to address, among other topics, major revisions to the Resource Conservation and Recovery Act (RCRA) (14). Other new policies in the 1990 revisions were:

- Expanded waste minimization and recycling
- Non-point source pollution
- Installation solid waste and hazardous waste management plans
- Revised guidance for environmental documentation in accordance with the National Environmental Policy Act (NEPA) Regulations (15)
- Compliance with the Medical Waste Tracking Act Regulations (16)
- Asbestos management and radon reduction programs
- Compliance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (17) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) (10)
- On-the-ground work, real property transactions, environmental agreements, compliance, auditing, reports, establishing an environmental quality control committee, and military construction sites

Unlike AR 200-2, which covers only one, rather mature environmental statute (NEPA), AR 200-1 can quickly become outdated because it covers a broad array of changing environmental laws, regulations, and subject areas. Further, the burdensome procedural steps required to publish an Army regulation contribute to infrequent revisions and result in policies which may not be current. For example, the 1990 version of AR 200-1, requires compliance with the Medical Waste Tracking Act of 1988, which has expired, and is not likely to be renewed by Congress. The policy guidance section for RCRA fails to mention the Hazardous and Solid Waste Amendments (HSWA) and the degree to which these amendments changed hazardous waste requirements, particularly by limiting the reliance on land disposal and by expanding the RCRA definition of corrective action. Although AR 200-1 contains policies for waste minimization and other forms of proactive environmental management, the 1990 revision, like its previous versions, primarily responded to then existing regulatory requirements, without establishing timely policies that could prepare the Army to meet environmental challenges in

the near future. To meet this objective, the Army would need a continuing analysis of environmental trends, emerging legislation, and regulatory developments, and a method of rapidly communicating this information to organizations at all levels. Perhaps this could be accomplished as a team effort among all functional proponents. The Office of the Judge Advocate General and the Office of the Chief of Legislative Liaison could also play a major role or maybe take the lead in such an effort.

There are several other Army regulations, technical manuals, technical bulletins, and various publications that help cascade overall environmental policies into other mission and support activities. Examples of these include:

- AR 420-47 (Solid Waste Management) (18)
- AR 420-74 (Natural Resources- Land, Forest, and Wildlife Management) (19)
- AR 420-40 (Historic Preservation) (20)
- AR 420-76 (Pest Management Program) (21)
- AR 700-141 (Hazardous Material Information System) (22)
- AR 700-127 (Integrated Logistic Support) (23)

3.1.3 Resources

At HQDA level, there may not be sufficient staff resources to conduct continuous analyses of new laws and regulations (especially international and state laws and regulations) and insufficient means or methods to rapidly communicate timely environmental guidance to operational levels. Army Staff functional proponents are usually not resourced with manpower to accomplish staff activities outside their functional areas of responsibility, although, various staff activities frequently work on overlapping or fragmented issues. It may not be realistic, therefore, to expect a commitment of manpower resources to integrate environmental policy within functional areas outside the Office of the Chief of Engineers (functional proponent for environment).

Competing demands for manpower resources are also felt at MACOM and installation level resulting in insufficient environmental staff to carry out all environmental policy requirements. The expectation is that installation commanders will evaluate environmental needs and allocate sufficient resources to meet environmental needs. However, in the competing demand for resources, environmental concerns often have low priority unless the installation as been the target of regulatory enforcement action. Even then, manpower resources may be targeted to high visibility environmental problems driven by these regulatory pressures, while other areas, such as integration of environmental policy, receive little or no attention.

During the past few years, installation civilian base operations strength has been experiencing annual double-digit percentage reductions. Given this steady, significant reduction in installation workforces, few installation commanders further reduce other staffing to augment environmental staffing (45). Such conditions are likely to continue for the foreseeable future making it crucial for other functional staff resources to understand and support environmental policies.

3.1.4 Implementation

Army policy making is partly driven by Department of Defense (DOD) directives and policy memos. For example, the Deputy Secretary of Defense signed a DOD Directive on Hazardous Materials Pollution Prevention in July, 1989 (24) which established DOD policy that hazardous material should be "selected, used and managed over its life-cycle so that the DOD incurs the lowest cost required to protect human health and the environment". Accordingly, Section 6-6 of AR 200-1 states that "Army policy is to reduce the quantity or volume and toxicity of hazardous wastes generated by Army operations and activities wherever economically practicable or environmentally necessary. Emphasis will be placed on source reduction methods such as hazardous materials substitution" (13). This guidance may implement the DOD policy from the DA standpoint, but it provides no specific information to installations as to what they can do to achieve success.

Army policy is developed and approved at Headquarters, Department of the Army, and is implemented at all levels as resources permit. AR 200-1 provides overall policy goals, substantive guidance, and some procedural instruction to commanders. For most subject areas, however, it purposely forgoes specific guidance for implementation except in some areas such as radon surveys and monitoring. Commanders are intentionally given full authority, and much latitude, in implementing AR 200-1 as it pertains to their local mission and resources. Consequently, implementation of environmental policy is often inconsistent from one installation to another causing some misunderstanding and confusion among regulatory agencies at the state and regional levels.

The extended periods (3-5 years) between subsequent revisions of AR 200-1, may leave commanders without timely policy guidance for implementing rapidly changing environmental laws and regulations. Commanders also need to share information and collaborate on regional approaches to solving common environmental problems. The only regular forum for exchanging ideas among installations is periodic commanders conferences or annual environmental/facilities engineer conferences that focus on many installation activities in addition to environmental issues. These forums are beneficial for updating commanders and staff on the status of environmental programs, but they may not be an optimal forum for sharing ideas among installation staff, for addressing cooperative plans and ideas to solve common environmental problems, or for achieving consistency in implementing environmental policy.

AR 200-1 requires installation commanders to conduct periodic internal and external assessments to determine the status of installation compliance with environmental laws and regulations. These assessments are highly effective in helping to measure implementation of environmental policy. Other DA level assessments are also useful in measuring policy implementation. For example, many useful changes were made Army-wide after the Office of the Inspector General conducted audit inspections of 47 Active Army sites and eight Reserve Component sites in 1989 (see Section 3.2.1).

3.1.5 Integration

Signatory agreements with other federal agencies can also establish de facto Army environmental policies. A notable example is Army involvement in the Chesapeake Bay initiative. Following the Environmental Protection Agency (EPA) identification of significant environmental problems in the Chesapeake Bay area, the federal government entered into an agreement with the affected states and the District of Columbia in 1983, and with the Department of Defense in 1984 (25). The goals of the Agreement were to improve water quality and living resources, accommodate environmentally sound

growth, increase cooperation among affected parties, and increase public input. For its part, the Army informally established a policy for participation in a multi-media pollution prevention program and initiated projects to extract and treat contaminated ground water, remove underground storage tanks, remediate soil, create and restore mudflats, wetlands, and wildlife habitat, and prevent erosion. Other projects recontoured and revegetated training grounds and demolition areas, and established extensive waste reduction and recycling programs in the affected areas.

In 1990 the Department of Defense entered into a second Chesapeake Bay Agreement with EPA (26), which led to the Tidewater Interagency Pollution Prevention Program (TIPPP) Memorandum of Understanding (MOU) of August 1991. The MOU established a formal policy of cooperation in the Chesapeake Bay Region between the Army, Navy, Air Force, NASA and EPA to formalize service and agency roles, and establish a framework for implementing pollution prevention projects and initiatives.

Army involvement in the Chesapeake Bay Agreement is an example of successful environmental policy integration into overall Army policy, albeit in a regional context. Although policy integration was not the main objective of these agreements the Army successfully achieved the integration of a regional program into a wide spectrum of other Army policy areas, including training, construction, industrial operations, natural resource management, and procurement. In this case, the reinforcement and cooperation from outside parties provided the impetus and motivation for the integrated involvement of all internal Army agencies.

Army cooperation with other affected parties in the Chesapeake Bay Agreements is comparable to the success element identified in the industrial profiles (Section 2.3), "cooperation with other affected external entities". It is also analogous in some ways to the cooperative agreement by Whyco Chromium with IBM in a joint venture to develop a more environmentally sound stripping process. In that example, cooperating parties were able to meet larger objectives and that could not be accomplished by one entity acting alone.

3.1.6 Recent Army Policy Initiatives

The Army has undertaken a number of recent initiatives to improve the environmental policy making process, as well as the integration of environmental policy with other Army policies:

- In 1988 and 1989, respectively, the Army established the Senior Environmental Leadership Conference (SELC) and the Senior Executive Environmental Council (SEEC) to improve guidance, coordination and implementation of environmental programs. The SEEC reviews the progress of the Army environmental programs, and involves all elements of the Army staff in environmental issues and solutions. The ASA (IL&E) and the Chief of Engineers (COE) co-chair the SEEC and regularly invite representatives of major commands (MACOMs) to participate. The SELC is also chaired by the ASA(IL&E) with participation by the Office of the Chief of Engineers. The SELC invites installation level representatives to identify environmental issues that need resolution.
- In 1990, the Under Secretary of the Army established the Army Environmental Policy Institute with a mission to provide long range strategic planning for future environmental requirements.
- In 1991, the Army started a process for preparing and maintaining an Environmental Strategic Plan.

- Continuing into 1992, the Army is developing several new tools such as computerized databases and an environmental master training plan to enhance dissemination of environmental policy information to field locations, and facilitate integration of environmental policy with other Army policies. A detailed list of some of these initiatives and responsible agencies are listed in Appendix A.

These initiatives have significantly improved the level of dialogue and coordination on environmental issues among functional proponents at the Department of the Army level and have provided a forum for participation by MACOMs and installations. This is an important first step in policy integration, but efforts must continue among other proponents and activities to seek opportunities to initiate environmental programs and policies in their respective functional areas.

3.1.7 Summary: Current Status of Policy Integration

In summary, Army methods for environmental policy formulation, integration and dissemination are in a state of transition. Challenges and opportunities exist for all functional proponents to achieve more successful policy integration. The following factors have been identified that deserve consideration:

- The need for a central program manager at DA level, whose primary mission is to direct environmental policy integration across all functional areas.
- Lack of consistent policies at installation level in dealing with state and regional regulatory authorities.
- Lack of "bottom up" involvement of other functional proponents in policy making and policy implementation processes.
- Lack of timely guidance and information at MACOM and installation level on changes to environmental laws and regulations.
- Ineffectual use of NEPA principles as the basis for integrated environmental policy decision making.
- Insufficient environmental staff at DA, MACOM, and installation level.
- Need for more legal involvement in analysis of environmental laws and regulations and dissemination of guidance to MACOMs and installations.
- Potential for participation in, or initiation of, regional environmental programs.

3.2 Obstacles to Policy Integration

3.2.1 Unfinished Business

A 1989 Army Inspector General Report concluded that the inadequacies noted in hazardous materials handling and waste compliance were caused by a fragmented environmental program, Army-wide lack of sufficient command emphasis, lack of information on regulatory and statutory requirements, lack of sufficient trained personnel, and a failure to commit resources beyond paying for today requirements as a result of past sins (27). As discussed in Section 3.1.4, the IG review was an effective tool for calling attention to major problems, and the Army swiftly adopted many of its specific

recommendations. These included appointing the Chief of Engineers (COE) responsible for all hazardous material/hazardous waste (HM/HW) management, providing additional training aids, and revising AR 200-1 to incorporate new laws and regulations.

However, the Army is still working to resolve all of the deficiencies noted in that report. Current progress toward achieving Army Secretary Stone's 1990 commitment to policy integration is reflected in comments received during interviews with personnel representing five different organizations DASD(E), ASA(IL&E), OCE, AEHA, and THAMA (1). The interview participants noted that there is a positive trend toward integrating environmental policy with the Army mission. However, they also agreed that steps taken to date represent only a beginning. Participants expressed confidence that Army leaders at the highest levels are committed to policy integration, but they also identified a need for more consistent command emphasis, particularly at the mid levels of leadership in areas of training, maintenance, and logistical operations. Participants also noted that operational readiness requirements unique to the Army (e.g., training maneuvers) are perceived as conflicting with Army environmental stewardship goals and objectives concerning natural resources. The following sections highlight obstacles in other specific areas of interest.

3.2.2 Communication and Information Management

The Army has still not achieved effective communication of the environmental ethic at all levels, especially between environmental policy makers and the individual soldier and between installation commanders and their environmental staff. As noted in Section 2.2.1, progressive companies in the private sector have developed employee incentive programs to communicate corporate support of environmental ethics.

Lack of sufficiently integrated environmental management systems is also an obstacle to effective information management. The Army has made great strides in integrating installation information systems for all major functional areas such as logistics, personnel, procurement, and facilities management. However, more progress is needed to fully integrate environmental databases to support or enhance environmental programs across all functional areas at the installation level.

Internal to the Army, participants identified inadequate communication at all levels as a major obstacle to effective integration of environmental policies. They stressed that, while soldiers are beginning to understand and respond to environmental considerations in their daily activities, there is still a lack of an Army wide command information program on environment, or an Army wide environmental education program. More work and training are needed to overcome a perceived breakdown in communicating environmental policies through the chain of command. Further, they noted that, while most MACOMS have a basic understanding of Army environmental policy, there are recognizable differences in policy implementation at the installation level, thus reflecting a difference in command emphasis on environmental issues. They also noted that there seems to be no effective mechanism to obtain an adequate priority of resources to meet environmental requirements. Finally, they noted that lots of people are finding solutions to environmental problems at installation level, but there is no mechanism for sharing these successful solutions from one installation to another.

Externally, the participants identified that there is an unsatisfactory level of involvement and cooperation with outside entities in solving local, regional, or national environmental concerns. This may lead to a misunderstanding of Army environmental policy and ethics by the public and environmental interest groups. There is also a need for more communication and cooperation among Army agencies and

between the Army and other military services and federal agencies in solving environmental problems of mutual concern.

3.2.3 Personnel and Training

Participants in an environmental trends workshop conducted by the Army Environmental Policy Institute (6) noted the lack of a sufficient number of trained environmental professionals as a major trend that will affect both the military and the private sector. A significant factor that makes this an obstacle to successful policy integration is that the Army has no Career Program for environmental professionals and no Career Training Program. The lack of an environmental career path means that there is little incentive to specialize in this area, salaries are not commensurate with responsibilities, and there are few features to attract and retain qualified people, as compared with private industry. Some functional proponents have not identified a requirement for environmental staff positions because environmental program management is not one of their functional responsibilities. A shortage of trained, qualified environmental professionals may limit the Army's ability to develop and implement integrated environmental policy across all functional areas.

3.2.4 Organization

Another obstacle is the fragmented nature of Army environmental organizations and there designated responsibilities. This fragmentation is apparent in Appendix B, which lists 17 different organizations responsible for hazardous materials/hazardous waste management. A division of responsibility makes it extremely difficult to establish, coordinate and implement policy initiatives and effectively communicate consistent environmental policy guidance throughout the Army. The Army needs a clearly visible central program manager whose primary function is environmental program management.

3.2.5 Program Resources and Focus

As previously noted, the primary emphasis of Army environmental policy in the 1980s was hazardous waste and cleanup issues. This was common to most federal agencies including the EPA. Today many federal agencies remain focused on remediation. The Army, however, is beginning to focus more on pollution prevention, but to achieve it, better resources and incentives are needed to improve regulatory analysis, communication, training, and integrated environmental program policies across all functional areas. An effective mechanism is needed to evaluate the cost benefits of increased resources for these and other environmental programs in a period of declining Army budgets. Environmental program funding still shows a priority for investigation and remediation of hazardous waste sites. For example, remediation and clean up is the only environmental program separately funded through a special Defense Environmental Restoration Account while all other environmental programs must compete for resources with other high priority Army mission requirements. Lack of resources may mean that the Army will not have access to the latest technology for solving complex environmental problems, and may not be able to invest in sufficiently in research to develop appropriate technologies needed now and in the future to address Army unique environmental problems.

3.2.6 Summary of Obstacles to Improvement

The discussions above identified the following obstacles to achieving successful policy integration and implementation:

- Lack of a clearly visible central program manager whose primary function is environmental program management.
- Insufficient allocation of resources and technology development on environmental issues other than hazardous waste site remediation.
- Lack of an effective mechanism to evaluate the cost benefit of increased resources for environmental programs in a period of declining Army budgets.
- Insufficient communication and environmental database integration across all functional areas.
- Lack of employee incentives and training to support environmental ethics.
- Lack of a professional career field and incentives for environmental staff.
- Lack of proactive involvement with regulatory agencies, the general public, and environmental interest groups in finding solutions to local, regional, and national environmental problems.

3.3 Success Elements Identified for Improved Policy Integration in Natural Resource Management

3.3.1 Introduction

There are many environmental policy areas (such as solid waste, hazardous waste, environmental restoration, research and development, noise abatement, natural resources, as well as policy formation itself) where employment of private sector success elements could improve policy integration. A complete discussion of all of these policy areas is beyond the scope of this initial investigation. For the purposes of illustration, one highly visible policy area (natural resources) will be discussed to demonstrate how significant improvements can be achieved by adapting the industrial success elements identified in the private sector profiles (Section 2.2) to Army operations. Natural Resources were chosen because they have not received the attention devoted to other policy areas such as hazardous materials/ hazardous wastes, solid waste, compliance, and remediation, and because the Army has increasingly been confronted with conflicts between natural resource management and training mission activities. Their is also a real potential for this policy area to become a target for increased public scrutiny and involvement. The discussion suggests how to achieve the integration of natural resource policy into other functional areas. The functional proponents responsible for implementing and enforcing various aspects of this policy area are presented in Appendix B, "Functional Responsibilities for Conservation of Natural Resources".

3.3.2 Conservation of Natural Resources

Status: AR 200-1, states that "On lands under Army jurisdiction, an integrated, multi-use, natural resource and land management program will be conducted that promotes the conservation and enhancement of ... threatened and endangered species ... soils and vegetation ... (and) wetlands ..." (13). The greatest obstacle to successful implementation of this policy is that natural resource conservation may conflict with other land use requirements.

AR 200-2 (30) requires that all major Army actions be assessed for their impact on natural resources and endangered species. The Army's Integrated Training Area Management System (ITAMS)

is available to assist installation planners in selecting training areas which will have the least environmental impact.

The three examples discussed below illustrate how Army mission activities can be affected by natural resources management requirements. Ways are suggested in which the perceived conflict can be managed to integrate policies and accomplish both Army mission needs and natural resource conservation.

Soils and vegetation - At many installations, Army lands have been stressed by the repeated use of heavy tactical vehicles during training maneuvers. Some of these lands have become stressed to the point that their value as a training area is greatly reduced. Additional pressures will be exerted on land resources as the Army continues with its Base Realignment and Closure (BRAC) program, and more operations are concentrated on a smaller number of bases, with more intensive training and greater potential for environmental damage.

Coulson (31) identified a need to provide a bridge between staff concerned with the operational aspects of military training (the Commander and the Training Area User), and staff concerned with the management of land and training area assets (The Director of Engineering and Housing). Coulson recommended the use of Geographic Information Systems (GIS) for managing military training lands. The Army might consider ways to integrate ITAMS with GIS databases. The GIS can incorporate data on topography, roads, drainage, soils, meteorology, water supply, forestry plantings, training zones, the biota, power, communications, nearby populations, cultural heritage sites and any special restrictions. While the Army has developed GIS for terrain analysis and operational planning, current usage does not incorporate land management considerations. Coulson noted that the use of GIS to integrate training and land management policies could have the following benefits:

- Increased environmental protection (assessment of environmental impacts)
- Conservation of environmentally sensitive areas
- Exercise planning (safety zones, usage rates)
- Education (reinforce environmental ethic)
- Coordination and planning for land use

Success Elements Identified for Improvement:

- Cooperation between internal affected parties (joint planning between trainers and land managers)
- Database management (geographic information systems to evaluate appropriate uses of land resources)
- Risk assessment (to determine which areas can best sustain damages from maneuvers).
- Education and training of environmental staff, soldiers, and civilian employees who manage or use natural resources on the installation.

Threatened and Endangered Species - Army installations typically encompass large areas of land holdings, many of which have become important remaining habitat for threatened and endangered

species. However, habitat conservation is often perceived as incompatible with Army mission needs. Controversies surrounding protection of red cockaded woodpecker (RCW) habitat at Fort Bragg, North Carolina, and at Fort Benning, Georgia recently demonstrated this conflict.

Fort Bragg is the home of the 82nd Airborne Division, and has a multi-purpose training range complex for weapons firing and maneuvers. It is also used as a major firing range for training helicopter pilots. Fort Bragg has a large RCW population which is routinely monitored in cooperation with the U. S. Fish and Wildlife Service (F&WS) as at other southeastern military installations that contain the old growth pines necessary for RCW habitat. F&WS requirements limit disturbance activities (such as firing and training maneuvers) outside a 1/4 mile radius of nesting trees. Despite the presence of the RCW population, the Army decided to locate the multi-purpose training range at Fort Bragg to meet the training needs of the 82nd Airborne Division. Recognizing the potential for the training activities to have an impact on nesting cavities and old growth habitat, the Army entered into an exception agreement with the F&WS that allowed a limit of seven incidental takings of woodpeckers. However, unintentional RCW population shifts in nesting locations recently caused eight incidental takings. After informal consultation with the F&WS, the Army agreed to shut down training operations on lands previously designated for military use. A pending formal decision will determine whether the Army can increase the incidental taking limit, or whether the Army will have to permanently discontinue use of the training site. In the meantime, helicopter pilots are training at Camp Le Jeune in North Carolina, at a greater expense (32).

Success Elements Identified for Improvement:

- Use NEPA process to integrate proposed mission activities with environmental considerations such as protection of endangered species
- Cooperation between internal affected parties (joint planning between training operations and land managers)
- Database management (to project RCW population growth and migration patterns, and Army land use needs)
- Risk assessment (should the training facility have been located at Fort Bragg in the first place given the increased potential for damage to the natural environment)
- Cooperation with external affected parties (F&WS, state wildlife planners)
- Public relations (environmental groups, general public)

Wetlands - The Department of Defense Authorization Act (33) directs the Secretary of Defense to carry out the destruction of the United States stockpile of lethal chemical agents and munitions. The Final Programmatic Environmental Impact Statement (34) for the Chemical Stockpile Disposal Program found that onsite destruction at each storage location posed less risk of human health impacts than offsite movement of the stockpile. The Army therefore chose onsite destruction (by incineration) as the preferred alternative for each of the storage locations, including the Aberdeen Proving Ground, Maryland.

The Aberdeen Proving Ground is located on a peninsula near the Chesapeake Bay. Its past activities as a chemical agent manufacturing facility and a weapons proving ground have led to widespread soil and groundwater contamination, and munitions buried in numerous unknown locations

throughout the area. Therefore, there are limited areas that are unaffected by these problems and yet are large enough to construct the demilitarization facility. The Army has identified the Gunpowder Neck Area, which lies in a wetlands, as the only candidate area unaffected by these activities, large enough, and located at a sufficient distance from populated areas, to qualify as the demilitarization site. Despite its wetland characteristics, the Army has therefore selected the Gunpowder Neck area for construction of the disposal facility.

Construction in a wetlands is a legal activity requiring submission of a permit application to the EPA and the Army Corps of Engineers, and consultation with the F&WS. The EPA has the authority to veto Corps of Engineers approval of an application based on negative recommendations from the F&WS, and other potential environmental impacts that must be considered under the NEPA process. Public hearings may also be required.

Construction of the chemical agent incinerators is a highly volatile issue in and of itself. Coupled with the issue of wetlands destruction, there is likely to be considerable public opposition to the disposal facility. However, in making the sensitive decision to select the Gunpowder Neck location, the Army did not confer with the EPA or state wetland officials about permitting requirements, did not consult with the F&WS about endangered species protection, and did not conduct liaison with the general public or environmental groups. Any of these actions would be helpful in explaining the Army position, and helping to ease potential public sentiment against construction.

Success Elements Identified for Improvement:

- Cooperation between internal affected parties (joint planning between Chem Demil program and land managers)
- Database management (evaluation of other potential sites)
- Risk assessment (in light of Congressional mandate, what are other options?)
- Cooperation with external affected parties (EPA, F&WS, outreach to state wetlands officials). If no other options are feasible, what mitigative measures should be explored, which have a chance of being accepted?
- Public relations (environmental groups, general public)

3.4 Summary of Current Army Policy

This chapter has summarized the current Army environmental policy making organization and discussed its current state of transition in structure and emphasis. This state of transition offers both challenges and opportunities for the Army to achieve more successful policy integration. Obstacles to greater policy integration within the Army organization were identified. A comparison of the private industrial success elements (Section 2.2), factors affecting current policy making (Section 3.1.7) and obstacles to integration (Section 3.2) reveals a linkage between the presence of the success elements in policies that have achieved successful integration, and the absence of the same elements being identified as obstacles to both successful policy making and policy implementation in the Army. This linkage suggests that the success elements may be one key to crafting a strategy for policy integration. However, it may be difficult to apply these directly to the Army. The Army organization differs from the private industrial sector in that management is purposely decentralized to allow installation commanders the needed flexibility in responding to their primary mission. While the highest Army authorities have

adopted a strong commitment to environmental policies and their integration into other functional areas, this commitment, despite the NEPA mandate for federal facilities, is often lacking at the installation level. Consequently, commanders may allocate insufficient resources to fully integrate or implement environmental policies.

Recognizing that the Army structure differs from the private industrial sector but that there are also many commonalities, Section 3.3 discussed management of natural resources as a policy area that presents opportunities for improved policy integration and presented examples of how the industrial success elements could be applied to policies in this functional area.

CHAPTER 4 FUTURE PERSPECTIVES

This chapter will discuss three future trends occurring within the Army, and at the national and global levels, that have the potential to influence Army environmental policies and their integration into other Army policies and strategies. These trends have been shaped by federal and state requirements, public opinion, and Army mission and resource constraints. The Army has an opportunity to influence these trends by assuming a leadership role and incorporating innovative approaches to managing environmental challenges at its bases worldwide.

4.1 Trend #1: External Cooperation with Affected Parties

4.1.1 Background

Vig and Kraft (35) argue that the 1990s will see continued environmental policy growth, and that the environment will remain a mainstream issue with widespread popular support. As evidence of this trend they cite the continued progression of environmental policy and more stringent legislation that evolved in the 1980s despite the Reagan Administration's attempts to reverse many of the environmental policies of the 1970s. As discussed in section 2.2.1, the pressure of a more increasingly stringent regulatory environment will require both the military and the private sector to develop comprehensive approaches to environmental management. Rich, et al, (36) noted that past environmental initiatives were defined too narrowly, and that future initiatives will need to address the broad, complex interrelationships affecting global change. Such initiatives will require the cooperative involvement of all parties affected by an issue. The 1990 Clean Air Act Amendments (37), which address local and regional air quality, acid rain, ozone depletion, social concerns, and market incentives, will likewise require cooperative ventures by affected parties.

The sheer size of the Army, its vast land resources, and the inherent potential impact of its mission on the environment indicate that it must be ready to respond to this trend with a strong integrated environmental effort that involves cooperative joint ventures with other government entities, the business community, and the public. As demonstrated in the examples of Whyco Chromium (Section 2.2.3) and the Chesapeake Bay project (Section 3.1.5), the emerging trend toward cooperative solutions to environmental problems holds great potential for success. A model for forming links with other affected parties could be developed from these and other examples. The benefits of this approach include access to shared technology, resources and information; increased motivation to integrate the efforts of internal organizations to achieve external goals; and increased public visibility and confidence.

The following section discusses two major areas (solid and hazardous waste management and natural resources management) that offer opportunities for cooperative joint ventures.

4.1.2 Solid and Hazardous Waste Management

The Army had over 120 installations generating hazardous waste in 1990. Even with downsizing, the Army will continue to be one of the largest single hazardous waste generators in the United States (11). Faced with a more stringent and complex regulatory environment, the Army has the opportunity to identify emerging regional and national environmental priorities and examine how its current practices are contributing to or detracting from environmental enhancement. Optimal management of both hazardous and solid wastes generated by Army installations will require cooperative ventures with the business community to share new pollution prevention technologies, and with local and regional

community leaders to seek solid waste disposal alternatives. The formation of external liaisons will also require integrated planning between internal functional areas such as research and development (technology sharing), housing (solid waste) operations, logistics and procurement (pollution prevention), maintenance engineering (pesticide use) and legal staff (legislative issues).

Through cooperative research and development ventures with universities and other industries the Army can obtain access to new waste management technologies. The Army can also coordinate with other policy makers and stakeholders such as legislators, affected businesses, regulatory agencies and environmentalists to link economic, social and technical approaches to develop solutions to waste management problems. An additional benefit is that participation with other policy makers and stakeholders can lead to forming a unified front in the legislative and regulatory process.

4.1.2 Natural Resource Management

The Army also has the opportunity to identify emerging natural resource priorities and examine how its current practices are contributing to or detracting from local, regional, national, and global environmental problems. The Army's vast land resources have significant potential for forest reserves and wildlife habitat. How the Army chooses to manage these lands will have wide ranging impacts in society and across different society elements - the business community, environmentalists, local development interests and regional planners. Areas where both the Army and other affected parties could benefit from participation in a joint venture approach include:

- Endangered species recovery plans (state and federal wildlife officials, environmental groups)
- Wildlife management plans (state and federal wildlife officials, environmental groups)
- Biodiversity (state and federal agencies, environmental groups)
- Watershed management (local, regional governments)
- Integrated pest management (agricultural groups, pesticide manufacturers)

4.2 Trend #2: Emerging Global Policy Concerns

4.2.1 Background

The nations of the world are increasingly realizing that environmental problems are transboundary problems. The upcoming United Nations Conference on Environment and Development in Rio de Janeiro in June 1992 is a recognition that international cooperation is needed to address our most pressing problems. The purpose of the conference is to attempt to reach agreements and secure commitments from participating nations on international issues such as biodiversity and global warming. The conference will be an encapsulation of emerging global policy concerns that will affect Army policy in the future. The Army has an opportunity to demonstrate its leadership on a national and international scale by monitoring issues discussed at the conference, and assessing its appropriate role in these future trends.

4.2.2 Global Warming

One of the most pressing objectives of the conference is to obtain commitments from industrialized nations to reduce their carbon dioxide emissions, a major cause of global warming. As a significant consumer of fossil fuels, the Army can participate in this objective by assessing the current fuel

consumption patterns of its vehicles and manufacturing sites, and evaluate opportunities for reductions through energy conservation, alternate energy sources or more efficient equipment. Other approaches could include cooperative agreements with regional energy suppliers, community participation in Army waste to energy plants, and expanding the use of low temperature hot water heat distribution systems at Army installations. Implementing these policies would require integration with functional areas such as logistics, training, operations, procurement, plant engineering/maintenance, and public relations.

4.2.3 Environmental Catastrophes

Impending environmental catastrophes in eastern Europe and the former Soviet Union comprise a second area of global concern that has the potential to directly affect the Army. In many regions of these countries the state of the environment is severely degraded. Erosion and acid rain threaten soil productivity for agricultural and forest crops. High contaminant levels in crops, and polluted air and water cause significantly excessive mortality and morbidity. Nuclear incidents such as the Cherynoble accident resulted in thousands of deaths, and left much more of the population suffering from radiation sickness. Such incidents also leave the soil and food supplies contaminated with radiation. While poor economic decisions on the part of previous managers constituted the root cause of these environmental problems, the resulting environmental problems are now a severe social concern. Environmental disasters of this scope, and their accompanying economic impact, pose a real threat to regional stability and a peaceful world order.

The Army may be called upon to deal with instabilities in these areas. Part of its task may be to lend its expertise in environmental restoration. The Army's wartime activities in such "hot spots" as the Middle East also have a high potential for environmental degradation. Part of the Army mission in these situations is to minimize wartime damage to the greatest extent possible. The tasks of providing environmental assistance to environmental disaster areas, and of ensuring minimal damage during military operations, will require integrating environmental policy with military objectives. These tasks will need to include a careful analysis of where environmental assistance can potentially be used to alleviate social stress, and the need for force.

4.3 Trend #3: Policies Likely to be Affected by Changing World Conditions

4.3.1 Background

Recognizing the end of the Cold War, Defense Secretary Cheney has proposed a radical reduction in defense spending by 1997 to 3.4% of the gross national product - a percentage lower than before Pearl Harbor (38). Others in Congress, anticipating a huge peace dividend, are proposing even greater reductions. While facing a significant downsizing in the Armed Forces, military planners are questioning the appropriate role of the Army in this new world order. While the Army operates under statutory requirements and has limited room for major shifts in its mission objectives, planners recognize that operational changes will occur. These changes will need a social analysis of the changing Army culture to help redefine the Army's environmental goals. Part of this analysis is to look at the factors related to the Army's role in changing world conditions, and how they can potentially impact Army environmental policy.

4.3.2 Impact of Mobilization on Environmental Compliance

With the rapid downsizing of the military force structure, concurrent reductions in production and other operations that generate hazardous waste may occur. However, the role of the Army in peacetime is to be ready for rapid mobilization and deployment. Mobilization could require supporting production and maintenance facilities to rapidly increase operations. Rapid production increases could mean a high risk of violating environmental permits. The easy solution (though not consistent with environmental goals) has been to seek blanket compliance exemptions from Congress. Careful contingency planning during the downsizing would allow the Army to project how it can maintain environmental compliance during rapid mobilization. Contingency planning would involve the integration of environmental policies with logistics, production operations, and readiness planning.

4.3.3 Environmental Restoration Program

The Department of Defense established the Environmental Restoration Program as a proactive effort to clean up massive contamination problems created at defense installations by past management practices in the use of hazardous materials and disposal of hazardous wastes. For its part, the Army has taken aggressive action through the Installation Restoration Program (IRP) to evaluate sites and implement remedial action. One hundred and thirty-five (135) sites have been cleaned up, and remedial activities were underway at 1,272 sites by the end of FY'90. In 1992, DOD expects to spend a total of $12 billion in IRP funding in conjunction with hazardous waste clean up and removal of underground storage tanks. Much of this work will be conducted by contractors. In this program, the Army has an opportunity to demonstrate its environmental leadership by cross-training selected Army personnel to complete or assist with the clean up effort. This core of cross-trained personnel would get hands on experience in the IRP program which might produce the following benefits:

- Provide training and experience for military personnel in civilian jobs with high marketability in the private sector. This would help reduce the personal impact on soldiers forced to leave the Army during downsizing.
- Create greater long-term continuity in the IRP program by maintaining expertise in house rather than using contractors.
- Instill an environmental ethic in Army personnel through pride in improving environmental conditions while learning marketable skills.
- Provide expertise for overseas environmental cleanup tasks (see section 5.2.3).
- Achieve most cost effective use of existing funds already allocated for the IRP.
- Use in house knowledge of waste types and improve public opinion of Army environmental ethics.
- Expedite cleanup and avoid pressures to indemnify contractors.

Taking this bold approach to the IRP program would involve careful integration of IRP environmental policy objectives with other functional areas such as personnel, training, engineering, operations, construction, legal affairs, contracting and procurement.

The Corps of Engineers administers IRP contracts for the Army and the Air Force and already has a skilled manpower pool of military engineers who could be cross-trained in remediation skills and

blended with cross-trained environmental remediation specialists from other branches in the Army to form an in-house capability for environmental remediation and clean-up. Several factors are already in place that could facilitate cross training of military personnel for environmental remediation. The Army Logistics Management College offers eight hazardous waste/hazardous materials-related courses that satisfy regulatory requirements for hazardous waste supervisors, environmental managers and handlers. The Judge Advocate General offers an environmental law course and provides instruction in liability issues. Fort Benning, Georgia provides a hazardous material incident management course for first responders that is open for Army-wide use. The Huntsville District, COE, teaches detailed cleanup and restoration skills. Several regional National Fire Academy Training Centers provide numerous courses in spill response and first responder training. The TRADOC/AMC schools provide some hazardous waste/hazardous materials training through pre-command courses. Most of these course offerings could be modified to accommodate cross-training additional personnel for IRP clean up work.

4.3.4 Base Realignment and Closure Program

Recent Forest Service analyses (39) project that forest and crop acreage in the United States is anticipated to continue decreasing over the next fifty years, at the same time that the demands for urban development and range area is expected to increase. This will likely result in pressure on the Army to maintain the acreage it currently has in forest land, and to continue or expand the land areas leased for grazing. The Army manages over 20 million acres as a public trust, including many natural and cultural resources which it currently makes available for public use. The current Base Realignment and Closure (BRAC) Program poses an opportunity for the Army to step forward in a position of leadership by proposing to convert unwanted land holdings into natural resource use.

Lands managed by the Army are an important component of local and regional ecosystems. Because of their relatively undeveloped status, they are important biotic reserves and offer a special opportunity for a national contribution. These land resources have an indirect parallel with the extensive land holdings that were recently abandoned by the Soviet military in eastern Europe. Reflecting the severe state of air pollution in eastern Europe, the former military lands are now known colloquially as the "green lungs" of countries such as Poland and Hungary.

The Army needs to evaluate its options for retaining land on bases designated for closure versus transferring the land to other federal agencies or selling the land and using the profits for other needs. It might be preferable to retain the land for use as forest land or wildlife reserves thereby retaining the option to use the land at a later date if Army mission requirements change. At many such sites, soil and groundwater contamination resulting from past activities complicate the options available. Some lands may not be suitable for any other use. Before selling a property to the private sector, the Army must certify that it is clean of all contaminants. The additional cost of cleaning up many marginally contaminated lands, in addition to cleaning up the major sites already being addressed in the IRP program, may be prohibitive.

Shands (40) described other lands that are now known as "The Lands Nobody Wanted". These were lands in the eastern United States that became severely eroded and depleted of soil nutrients by years of intensive cotton farming. They also included lands that were intensively clearcut on rocky ridgetops with thin soils in the Appalachian mountains. The U. S. Forest Service was able to acquire these lands in the 1920s and 1930s primarily because they were cheap, or altogether abandoned by farmers who left for more fertile land elsewhere. Owing to the protective management of public ownership, these lands are today listed among our national treasures, providing important wildlife habitat, watershed protection

for growing cities, mature forests that protect against flooding and filter contaminated air, timber for local markets, and multiple use recreational opportunities. For example, the national forests of the Southern Appalachians, which together with the Great Smoky Mountains National Park encompass more than 3.5 million acres, host more than half the species of trees, ferns and flowering plants on the North American continent (41). Whittaker (42) acclaimed the Southern Appalachians as one of the two most important centers for biological diversity in the United States.

The point to be made from this discussion is that natural systems, even though damaged, have a capacity to recover. By retaining control over these lands (in the national interest), at very modest cost, the Army may maintain future options for reuse which would be very expensive to obtain again later.

One could make the argument that the degraded lands of sixty years ago are not comparable to Army bases because those lands were not contaminated by the complex array of synthetic chemicals and buried, unexploded ordnance found at many military installations. However, new information indicates that both a hands-off approach and the use of vegetation in bioremediation have great potential in cleaning up contaminated sites (43). Perry McCarty, Director of EPA's Western Region, Hazardous Substance Research Center, recently reported that in many cases certain contaminants will disappear if they are left alone. For example, he said research at a Superfund site in St. Joseph, Michigan showed that native methanotrophic bacteria degraded chlorinated solvents when left alone. Larry Erickson, Director of the Great Plains/Rocky Mountain Hazardous Substance Research Center, noted that a bio-remediation scheme being tested at the Center uses poplar trees to reduce nitrates in ground water. McCarty noted two obstacles to this approach: the first is not knowing how long degradation would take; the second is regulatory concern about chemicals migrating offsite.

In light of these factors, the Army could evaluate bases scheduled for realignment or closure in terms of:

- Potential value as natural areas (fifty year projection -include watershed, habitat, forestry, "green lung" values).
- Contaminant status (type, extent, potential for offsite migration, amenability to bioremediation techniques).
- Cost to maintain in protective custody versus cleanup costs and/or costs recovered from resale.
- Feasibility of transfer to other government agncies such as the Forest Service for protective custody with MOA's retaining options for future use by the Army.
- Ability to obtain concurrence of regulatory agencies with innovative cleanup approach.

4.3.5 OCONUS Facilities

AR 200-1, Section 1-24 (13) states that commanders of facilities outside the continental US (OCONUS) will comply with host nation standards, and program and budget resources to manage hazardous materials. The current drastic budget reductions discussed in Section 4.3.1, and rapid redeployment of troops from OCONUS locations, have the potential to affect compliance with host nation environmental requirements at those military bases the Army plans to retain overseas. This could cause adverse public relations in the host countries. However, with careful planning and integration of environmental policy with other appropriate functional areas (logistics, transportation, scheduling, public relations) the Army has the opportunity to set an exemplary record of environmental responsibility

and improve public acceptance and support of U.S. forces in these host countries. The DOD Environmental Baseline Guidance, when approved, can provide help in this area. When implemented by the Army, the Guidance offers a philosophy and tools for both accomplishing the challenge and publicly demonstrating to host countries the Army commitment to responsible environmental management.

4.4 Summary of Future Perspectives

This Chapter discussed several innovative ways in which the Army can respond to future policy challenges by cooperatively participating in problem solving with affected parties, by proactively planning for international issues such as global warming and the social consequences of damage to the natural environment, and by seeking creative solutions to potential problems caused by operational changes to fit changing conditions. All of these future challenges require the integration of environmental policies with policies of other functional areas for successful solutions.

CHAPTER 5 UNDERSTANDING THE PLAYERS

This Chapter summarizes the functional areas which are (or could be) affected by environmental policies, describes the benefits of an integrated approach, and discusses how the Army can integrate environmental policy into decisions and policy development in these functional areas.

5.1 Functional Areas Affected by Environmental Policies or Which Help Shape Environmental Policies

Discussions in the preceding chapters noted major functional areas where there are opportunities for integrating environmental policies. These are:

- Engineering
- Facilities Operations
- Financial Management
- Land Use Management
- Legal Affairs
- Logistics
- Maintenance
- Medical and Safety Offices
- Personnel
- Procurement
- Public Affairs
- Research and Development
- Training and Readiness
- Transportation

In addition to these functional areas, there are organization managers and mission commanders who establish and/or implement policy for environmental programs. These individuals include MACOM and Installation Commanders, Managers of Government Owned/Contractor Operated facilities (GOCOs), and managers of local Defense Reutilization and Marketing Service collection points (a DOD organization). AR 200-1 describes the responsibilities of these individuals and organizations in broad terms, but does not provide detailed procedures as to how these agencies can or should accomplish specified policies. As discussed in Sections 3.1.3 and 3.1.4 of this paper, AR 200-1 implies that each installation commander or Army organization will develop their own methods to successfully implement environmental policies. However, there is not a clear set of positive incentives to motivate environmentally supportive behavior on the part of these individuals and organizations.

A review of the following two questions may provide an understanding of factors that discourage or motivate individuals to integrate environmental policy within their own organizations.

- What are the social and cultural dimensions of the affected Army organization that could influence motivational change?
- What will an organization gain (or lose) by integrating environmental policies into its own organizational policies?

While a detailed profile of each organization affected by environmental policies is outside the scope of this initial investigation, the most important social and cultural dimension of all of these organizations is that environmental policy is not their primary mission or their highest priority. Therefore, incentives and disincentives for integrating environmental policies should be evaluated to determine the best approach to policy integration. The evaluation should determine whether integration will have a neutral, positive or negative effect on each organization. The following sections discuss the benefits, and incentives of policy integration.

5.2 Benefits of an Integrated Approach to Environmental Policy Development in the Army

Integrating environmental policies will benefit Army operations across all functional areas. These overall benefits include:

- Positive response to Congressional demand for federal facilities to step forward as national leaders in environmental protection
- Positive response to increased emphasis by EPA for an aggressive federal facility enforcement program
- Demonstration of Army resolve and commitment to seriously address national and global environmental challenges, and to improve public opinion
- Increased efficiency in the use of resources by correcting those environmental deficiencies that could result in fines and penalties thus diverting funds from operational or mission requirements
- Maximized efficiency in meeting environmental challenges
- Ability to aggressively identify, justify and defend personnel and resource requirements through a team approach
- Minimized duplication of effort

These benefits can pervade all segments of the Army, and act as positive incentives for functional proponents and organizational managers to integrate environmental policies. The following section discusses specific incentives and methods for integrating environmental policy.

5.3 Considerations for Integrating Environmental Policy

5.3.1 Motivation

Environmental policy integration may require behavioral and cultural changes within the affected functional area or organization. Any change must be consistent with sustaining the primary mission. The most effective method to achieve change may be to draw non-environmental personnel into the environmental decision making process through delegation of policy making tasks. This requires

identifying incentives for change and social and cultural barriers that act as disincentives. The evaluation should also consider the degree of sacrifice that may be required (time, budget, other programs), and how to ensure equity. Since benefits may not be immediately apparent, the process should seek methods to conceptualize long term benefits. Questions that need to be asked include:

- What policies hold a negative risk? What policies pose a positive risk?
- What are the installation-specific environmental problems?
- Are alternative approaches to implementation needed?
- What environmental policies should be centralized or decentralized?

These questions should be considered individually for each functional area. However, the Army can use the following general approaches to provide incentives and assist functional areas in identifying long term benefits:

- In cross media efforts such as pollution prevention, use mass balance systems and life cycle analyses to demonstrate how environmental policies can actually improve operations and save resources in operations, engineering, and logistics
- Provide incentives for natural resource conservation by transferring responsibility for resource conservation and restoration to the user. Institute a user payment and reimbursement system for mitigating excessive natural and cultural resource degradation
- Tie environmental achievement in all functional areas to the promotion and award system
- Develop a program for installation commanders to reward environmental initiatives
- Expand the scope of the Hazardous Waste Minimization Incentive Award program to tie into other areas such as Maintenance and Supply Excellence awards
- Offer environmental excellence awards for GOCOs and tenants
- Sharpen requirements on contractors and tenants

5.3.2 Strategic Planning Concepts for Policy Integration

Cockell, et al, (44) noted that two of the most promising business planning concepts applicable to strategic planning in the DOD are core competencies and strategic intent. A core competency is a complex combination of technology, manufacturing base, skilled manpower, training, organizational adaptivity, doctrine and operational experience that permits the DOD to do something of strategic importance extremely well. Characteristics of core competencies relevant to environmental policy are that they are path dependent, resulting from years of operational experience and technological know-how, and that they are key in determining the outcome of major endeavors. Some examples of current DOD core competencies are vertically integrated local and global surveillance, communications, and global troop mobility. The value of core competencies lies primarily in their potential to help DOD plan forces and capabilities in adapting to changing mission needs.

Business firms use core competencies to enable them to change products and product lines in ways that increase their market share, and to do so faster than their competitors.

In the environmental arena, the Army has the opportunity to harness core competencies in other functional areas to help integrate environmental policies. For example, the Army has core competencies in remote sensing, surveillance, and communications. These competencies could be used to assist in environmental monitoring on a national or even a global scale.

The Army also has core competencies in training which could be combined with U.S. leadership in environmental technologies. As discussed in section 4.3.3, these strengths can be "re-tooled" to serve the IRP mission, and to develop a core of environmental remediation specialists. This competency could be used by the Army in a nation building role to assist Eastern European countries in environmental remediation thus establishing new mission capabilities to enhance its role in National Defense. As a precedent, the Army has recently provided nation building engineering assistance to developing countries in Central America.

The Army does not currently have a core competency in environmental management. However, it does need to assess whether environmental management will be an important core competency in the future. The decision whether or not to develop an environmental core competency is related to strategic intent. Cockell et al (44) defined strategic intent as follows: "Strategic intent is a concise but powerful statement of an organization's dominant long-range competitive goals. It is a vision of the desired competitive position of the organization over one or two decades and of the organization's basic strategy for achieving this position -- how the firm intends to do business. Articulation of strategic intent should lengthen the organization's attention span while allowing flexibility and adaptivity in short-term goals and strategies within the framework of the strategic intent".

As stated in section 2.1 the strategic intent to achieve integration of environmental policy has already been articulated at the highest levels in the Army. The Army Environmental Strategic Plan for the 21st Century, currently under development is also anticipated to reflect this intent. The development of a core competency is simply the next logical step is achieving this goal.

A new core competency can enhance or be developed from an existing core competency. Still it can take considerable time and resources due to the breadth, complexity and path dependency of core competencies. For example, the Army could build a new environmental core competency by capitalizing on the environmental technologies already possessed by the United States, and adding its own considerable experience in remediation management, environmentally responsible manufacturing (including pollution prevention), skilled manpower, training, a world wide organizational structure, an environmental ethic, and operational discipline. The integrated component of the core competency concept is strikingly similar to the goal of integrating environmental policy across other Army functional areas. In effect, as the Army moves toward achieving policy integration, it will also be moving along the path toward building an environmental core competency.

Cockell et al (44) discussed three other business planning concepts that may be applicable to Army environmental planning. These are scenario analysis, maximizing value added as a decision criterion, and strategic alliances and alignments.

Scenario analysis identifies factors affecting the outcome of current trends, rather than predicting end results. The technique uses key strategic variables in scenarios to illustrate why many expected developments are unlikely, to illuminate influential processes underway, and to highlight interdependencies and possible discontinuities in trends. This provides a clear picture of forces affecting whether or not a goal will be successfully achieved. Many of the issues discussed in sections 3.1 and 3.2 ("Current

Army Policy Development and Dissemination", and "Obstacles to Policy Integration") constitute key strategic variables affecting the outcome of successful environmental policy integration. It would therefore be very useful to apply the scenario analysis technique to the policy integration goal, using the issues identified in Chapter 3.

The Army can use the concept of maximizing value added as a decision criteria in evaluating the best approach for the cleanup needed under the Installation Restoration Program. As discussed in section 4.3.3, the Army is currently using contractors for a majority of the work, while at the same time, it faces the need to reduce its force structure. A value added analysis could be used to compare the current cost of contract clean-up and the reduced role of the Army against the costs of retraining personnel for environmental specialties and building a new core competency by accomplishing the clean-up work in house. The analysis, however, should also include the benefits (negative costs) such as an improved environmental ethic and the transferability of environmental skills to civilian employment for soldiers leaving the Army.

Cockell et al (44) also identified business alliances as a promising area for reducing costs and accomplishing mutual goals. They noted that alliances can enhance one's competitive position by learning from the alliance partners. Section 4.0 identified external cooperation as an emerging trend that will likely affect Army policy making. The Chesapeake Bay Agreements demonstrated the benefits of such cooperative ventures. In the Army's case, this could mean improved relations with the public and other agencies.

5.4 Summary

It is important to identify functional areas that can assist in integrating environmental policy, and to target benefits of integrating environmental policies to those functional areas. Integration will be successful if affected areas perceive that environmental objectives are compatible with their functional mission. There are some general incentives for drawing other functional area personnel into the environmental decision making process, however, specific incentives applicable to each functional area need to be developed individually.

The core competency concept is a useful business planning tool that can help the Army capitalize on its existing strengths and adapt mission capabilities to meet changing environmental needs. The concept of strategic intent is tied to the idea of core competencies and policy integration, and should also be adapted to Army environmental planning. Other business tools that can be useful to Army environmental planning are scenario analysis, maximizing value added as a decision criterion, and the formation of strategic alliances. These business planning concepts incorporate many of the success elements, and can be used in parallel with, or as a part of, an overall strategy for policy integration.

CHAPTER 6 OPTIONS AND SUGGESTIONS FOR INTEGRATING ENVIRONMENTAL POLICY INTO OTHER ARMY POLICIES

This chapter will discuss options and provide suggestions for an Army approach to integrating environmental policy with other functional Army policy areas. These options and suggestions are derived from discussions in the preceding chapters.

6.1 Options for Policy Integration

The strategies listed below are approaches the Army might consider for developing its integration strategy:

Option 1: Focus on improved implementation of the NEPA process to integrate environmental policies into Army mission and support programs

The NEPA process is an important foundation for integrated Army environmental policy. It should set the tone for systematic integration of environmental policies throughout all functional areas. However, the common perception of NEPA in many instances is that; it is a burdensome regulation which requires lengthy documentation for all major actions, it poses a significant obstacle to the primary mission, and it consumes considerable resources even prior to project initiation. Given this possible perception, it may be difficult to "sell" the concept of improved NEPA implementation as the primary impetus for integrated environmental policy. However, it may still be useful to stress that NEPA is a legislative mandate and that the Army's goal is to improve policy integration through improved implementation of the NEPA process. As a motivational factor, the NEPA contention might be strengthened when used in conjunction with the second and third options.

Option 2: Focus on and expand policy integration within the current environmental management organization, emphasizing recent innovations that can help increase policy integration (e.g., maximize the potential of new database management systems identified in Appendix A, increase frequency of SEEC meetings and involvement of Army Staff functional proponents in solving environmental problems, push on with approving and implementing the new Army Environmental Strategy for the 21st Century.)

As discussed in Section 3.1, the Army environmental policy making process is in a state of transition. Initiatives and innovations such as ECAS, SEEC, SELC, Environmental Training Master Plan, etc., can identify policy deficiencies, provide a forum for issue resolution, and a system for communicating integrated environmental policy throughout the Army. They can also be used to demonstrate the commitment of the Army leadership to policy implementation and integration. The new database management tools listed in Appendix A have great potential to facilitate integration of environmental policies. The Army Environmental Strategy, currently under development, has the potential to provide an important framework for policy implementation. These three elements together provide leadership, tools to facilitate information exchange, and a framework for policy implementation. However, taken alone, they do not fully address some of the obstacles to successful environmental policy integration in the Army.

Option 3: Focus on the industrial success elements. Identify how these elements can be used to integrate environmental policies into other functional areas, using the example approach discussed for conserva-

tion of natural resources (See Section 3.3.2). Incorporate the success element approach in policy planning for future trends that will impact the Army such as cooperative ventures, new global issues, and changing world conditions.

Chapter 3 identified a linkage between the presence of the success elements in policies that have achieved successful integration, and the absence of the same elements being identified as obstacles to policy integration in the Army. This linkage suggests that the success elements may be one key to crafting a strategy for environmental policy integration.

The success elements, as well as important aspects of Options 1 and 2, provide a possible three tier approach to integrate environmental policies. The first tier can use the NEPA principles as the regulatory foundation and rationale for environmental integration. The second tier can demonstrate a tone of leadership commitment through organizations such as the SEEC, and provide tools for information exchange. Planners can also anticipate thoughtful input from the Environmental Strategy for the 21st Century, currently under development. The third tier can use the industrial success elements to achieve integration, and find solutions to specific deficiencies or situations.

6.2 Suggestions for Adapting the Private Sector Industrial Success Elements to the Army Structure

While it may be necessary to evaluate environmental policy areas individually to determine the best approach in each case, The following are general suggestions for adapting the ten private sector success elements to the Army structure.

Success Element #1: Centralized environmental organization to coordinate policy integration and program management

The successful industries profiled in Section 2.2 had a centralized organization that coordinated policy making, dissemination and integration. The central organization had a single purpose and had control over the extent of resources allocated to environmental programs. In contrast, Section 3.1 noted that the Army organization is intentionally decentralized to allow organization, activity, MACOM, and installation commanders the flexibility and authority to accomplish their primary mission. As a consequence, de facto environmental policies, are established and confusion may occur. Section 3.1 also noted the current fragmented approach to many environmental policy issues. The following are suggestions that might address these problems:

- Appoint a DA level central manager whose single function is to establish environmental priorities and integrate environmental policy across all functional areas.
- Re-visit concept of Installation Commanders having sole responsibility for environmental programs. Evaluate which issues are best suited for centralized uniform policies and which are more efficiently managed through decentralization and an installation-specific approach
- Consider consolidating specific functions which would benefit overall management of environmental program areas. As an example, if the DEH is responsible for hazardous waste management, put that organization in charge of hazardous material procurement and storage

Success Element #2: Commitment demonstrated by allocation of sufficient personnel and resources to achieve objectives

This success element is tied into the centralized management issue above. As discussed in Section 3.1, installation commanders have authority over allocation of resources and are continuously faced with conflicting demands for resources in accomplishing their military mission. However, the following measures can help maximize resources within the decentralized structure:

- Use the risk assessment approach discussed in success element #4 to identify and quantify all environmental program requirements, prioritize environmental needs at the DA level, and update program budget guidance for improved funding of environmental requirements
- As suggested in Section 4.3.3, shift contractor funds in the IRP program to cross-train Army personnel for in-house clean up of contaminated sites
- As suggested in Section 4.1.2, supplment scarce resources for research and development of new technologies through cooperative ventures with external affected parties
- Sections 3.1 and 3.2 identified areas where HQDA can provide centralized services to installations. These include providing installation commanders with increased regulatory assistance, more efficient data management tools, and training programs

Success Element #3: Coordination between affected internal organizations (logistics, operations, facilities management, etc.)

Coordination between affected internal organizations will be one of the most difficult objective to achieve because it depends on individual motivation. Section 5.1 noted that in order to understand obstacles to integration, one must identify the social and cultural dimensions of affected organizations, and what they have to gain or lose by integrating environmental policies with their own policies. Given an understanding of these obstacles, section 5.3 listed incentives that could be applied to achieve policy integration. The following measures could improve internal coordination:

- Involve social scientists in conducting a survey of each functional area to identify existing strengths, incentives for change, social and cultural barriers, the degree of sacrifice that may be required (time, budget, competing priorities), methods to conceptualize long-term benefits, and how to ensure equity. In particular, identify any basis for conflicts in Army missions with environmental concerns in each functional area. Based on the survey results, determine how to best capitalize on existing strengths, establish incentives, and overcome perceived conflicts by finding creative alternatives for accomplishing both mission objectives and environmental goals.
- Participate in the planning process of other functional proponents such as training and operations to identify potential areas of environmental conflict
- Study the policy trends in other functional areas such as resource management, personnel management, force structure and stationing, and organizational planning to identify their impact on environmental program areas.
- Apply the general incentives summarized in section 5.3

Coordination among affected organizations will also be needed in addressing the future trends discussed in Chapter 4. For example, the BRAC program will require input from a number of functional areas. Likewise, mobilization for wartime activities requires a cooperative effort throughout the Army. We suggest the following to more fully integrate environmental considerations into these major efforts:

- Coordinate the BRAC program with natural resource planning by evaluating the following factors at bases scheduled for closure: extent of contamination, potential value as natural area, cost, alternative cleanup approach, and ability to obtain concurrence of regulatory agencies
- Coordinate environmental concerns with mobilization planners to ensure compliance at production facilities, and to accomplish wartime objectives with the least impact on the environment.

Success Element #4: Prioritization based on risk assessment

Prioritization is also linked to the central management issue discussed above. As demonstrated in the private industry profiles, this is an important factor in successful resource allocation. The following measures can maximize limited resources through risk assessment:

- Provide Installation Commanders with guidance and risk assessment methods to allocate resources. Use risk assessment methods to counter perception of conflict and to set priorities for decisions in areas such as training needs versus natural resource needs. In cases where there are no environmentally responsible choices, such as the need to build in a wetland (see section 3.2.4), demonstrate how risk assessment can be used to find methods to reduce or mitigate adverse impacts
- Use risk assessment and computer models to prioritize pollution prevention programs and deploy scarce resources to the best advantage. In the Installation Restoration Program, develop and prioritize control strategies for cross-media pollution prevention
- Require all decisions to include the full environmental cost. (For example, as noted in Section 3.2.4, projected costs of an alternate training site once the incidental taking limit on RCWs was reached at Fort Bragg might have led to a decision to build elsewhere, and might have avoided the resulting controversy).
- As discussed in section 3.1, use risk assessment analyses to demonstrate the true cost of noncompliance, and to assist Installation Commanders in making choices between the installation mission and environmental programs
- As discussed in section 4.3.4, the Army controls a vast amount of land that is an important component of local and regional ecosystems. Prioritize lands available for conservation programs to take advantage of site specific conditions and opportunities

Success Element #5: Staff assistance (e.g., with special required functions such as TRI reporting)

In the industries profiled, a centralized environmental organization typically supported facility managers by providing regulatory updates, planning and coordination, and assisting with finding solutions to new environmental requirements. Because of limited staff at HQDA, and its decentralized command/management authority, the Army has found it difficult to provide these services. HQDA could improve these services as follows:

- Increase policy analyst and legal positions at DA level to provide more assistance to MACOMs, Installation Commanders, and environmental staff in interpreting new regulatory requirements. Include personnel to monitor new state regulations and advise affected installations.

- Provide assistance to other functional area planners to help them incorporate environmental strategies into installation planning documents such as the Installation Master Plan, Hazardous Waste Management Plans, and Training Plans.
- Develop performance measurements to clarify environmental goals and assist policy implementation.
- Establish environmental staff positions in other functional areas and increase communication among environmental staff representing different functional organizations by sponsoring participation in conferences, technical training and other events that facilitate communication and networking.

Success Element #6: Database Management

Appendix A identified new data management systems that can greatly facilitate policy integration. However, these systems will not be useful unless they are adopted and used by the affected functional areas. One problem noted in section 3.1 is that these systems were developed from a "top down" perspective, rather than by the affected users. Section 3.3.2 also noted the need for integrating the computer system infrastructure, and section 3.2.4 noted the need for expanded information systems in natural resource management. The following measures could improve data management:

- Promote use of new data management systems listed in Appendix A, and ensure that they are compatible with other Army and DOD information systems.
- Encourage functional proponent areas to develop information systems specific to their individual needs in implementing environmental policies.
- Provide other functional areas with appropriate data management tools to collect data needed for risk assessment and environmentally compatible planning. Identify appropriate data input elements to ensure consistency.
- Use database management tools to project local natural resource trends (such as a shifting population of the RCW that occurred at Fort Bragg).
- Expand current usage of information management systems such as GIS to integrate multi-agency ecological programs.

Success Element #7: Employee Participation and Incentives

As discussed in section 3.3.1, interviewees representing five different organizations (1) commented that there is still a lack of an environmental ethic throughout the Army. Section 5.3 discussed incentives for integrating environmental policies into other areas to promote environmental consciousness. The following suggestions expand on the recommendations presented in Chapter 5.0:

- Promote the environmental ethic through feature articles on successful environmental efforts such as pollution prevention in Soldier Magazine, The Army Times and other publications widely read by soldiers and installation staff.
- Evaluate the potential for employee exchange programs to make the best use of personnel trained in special conservation, pollution prevention or remediation techniques.

- Develop employee and soldier participation in pollution prevention and resource management.
- Establish process for "bottom-up" user input to environmental policy making and research and development needs. Examples include involving users in energy conservation recommendations, and involving procurement, logistics and operations personnel in hazardous waste/ hazardous materials handling policy development.

Success Element #8: Training

Section 3.2 discussed the need for more environmental professionals throughout the Army, and also the lack of an environmental career path. Section 4.3.3 noted that while there are significant resources allocated for the IRP program, much of this work is currently done by contractors. Given the current force reductions and need to help soldiers leaving the Army, options were suggested for cross-training soldiers to conduct the IRP work in house. The following measures are suggested for further consideration:

- Review previous Army decision not to create an environmental specialty for military personnel. Establish a separate career program for both military and civilian environmental professionals. As part of the planning for downsizing, evaluate the potential to mobilize the Army manpower for participation in the clean up of contaminated bases set for closure.
- Raise the level of visibility and authority for environmental staff.
- Expand existing Army environmental training capability to cross-train more personnel for environmental specialties.
- Shift contractor funds to support more authorized environmental positions. Use existing contractors in supplemental, advisory, or training role.
- Establish environmental internships in the IRP program.
- Explore the possibility of participating in joint environmental training with EPA and state personnel as a means of maximizing training resources. Joint training sessions would have an additional benefit of improving communication between Army and regulatory personnel.

Success Element #9: Cooperation with External Affected Entities

The industrial profile of Whyco Chromium (section 2.2) and the discussion in section 3.1.5 of Army cooperation with other agencies in the Chesapeake Bay Initiative, demonstrate that environmental problems may be effectively addressed by joint ventures with other affected entities. Section 4.1 expanded on this idea and suggested several national policy areas where both the Army and other affected parties could benefit from joint participation. The following suggestions summarize how the Army can best approach cooperation with other affected entities:

- Establish pollution prevention partnerships with industry, the public and special interest groups, for example, community participation in waste to energy plants.
- Participate in cooperative research and development to produce environmentally benign technologies for transfer to Army industrial processes.
- Cooperate with suppliers to find more environmentally benign materials.

- Cooperate with other affected parties in the legislative and rule making process.
- Explore opportunities to enter into other regional agreements similar to the Chesapeake Bay Agreements in areas such as global warming, solid waste management, watershed management, biodiversity, endangered species, integrated pest management and wildlife recovery plans.

Success Element #10: Public Relations

The International Paper Company profile in section 2.2 noted that the company instituted a community outreach program in response to adverse publicity over environmental issues. Company officials reported that the program was very effective in improving relationships with surrounding communities. Interviewees from five organizations (1) noted that there is still an unsatisfactory level of involvement and understanding of Army policy by the public and environmental interest groups. Section 3.3.2 provided two examples in natural resource management (wetlands and rare and endangered species issues) that demonstrated the need for an increased level of community involvement. Section 4.3.5 noted that there is a potential for adverse relations with host countries if environmental concerns are not addressed during the current downsizing. Based on these concepts, the following provides specific recommendations for improving Army public relations programs:

- Recognize public interest and involvement in stewardship of Army lands as an element of public trust through outreach and community involvement in natural resource decisions (forestry, wildlife, rare and endangered species management)
- Coordinate with host country environmental officials in OCONUS facility downsizing, and in responding to social upheaval caused by environmental catastrophes
- Publicize successful conservation of natural resources and make them more available for public recreational purposes.
- Provide public briefings on major new initiatives.

6.3 Summary

Current Army policy making is in a state of transition. Part of this transition is to evaluate how environmental policies can be integrated into other Army policy areas and functional areas. There are multiple factors that may be obstacles to policy integration, and new future trends which have the potential to affect Army environmental policies. Ten success elements from industry were described which were used to achieve environmental policy integration in the private sector. These success elements may be one key to overcoming obstacles and crafting a strategy to achieve environmental policy integration in the Army.

CHAPTER 7 GENERAL OBSERVATIONS AND COMMENTS

The preceding chapters have provided an initial investigation into the trend of environmental policy integration in the Army. At this point some general observations and comments may be helpful to establish a realistic expectation of what the Army may be able to accomplish toward meeting this trend.

To fully integrate environmental policies into other policy decisions, the Army may have to invest some effort in changing the way functional managers, organization/activity commanders, and senior policy makers view their environmental responsibilities. If a survey were taken of senior functional managers, commanders, and policy makers at DA, MACOM, and installation levels regarding their views on the importance of environmental issues to their primary mission responsibilities, it might show a consistent belief that environmental issues are important to their functional area, but that environmental management is not one of their primary mission responsibilities. Environmental issues can affect almost all functional areas and mission activities, yet the Army seems to view environmental management as it views other functional areas as though the function can somehow be managed by a particular functional segment or organization within the Army structure. That view might work if a single environmental program manager had the authority to direct how other functional managers accomplish their primary mission responsibilities, but it would mean controlling their priorities as well. This is not reasonable or feasible in an organization as large and complex as the Army, where managers are given great responsibility and broad authority. Instead, a more effective approach would seem to start with identifying the important aspects of each functional area, or mission activity, which contributes to or affects the achievement of the Army's overall environmental objectives. Then, give each functional manager, organization or activity commander, direct management responsibilities and environmental policy determination in those areas. Where environmental issues or aspects cross functional boundaries, the final policy decision should rest with the functional manager whose primary mission has the greater potential impact on the environment.

This suggestion may be too great a leap from the present management structure in the Army, but it could be accomplished in phases using the ideas, techniques, and methods described in this initial investigation. The core competency concept is a useful business planning tool that can help the Army capitalize on its existing strengths and adapt mission capabilities to meet changing environmental needs. The concept of strategic intent is tied to the idea of core competencies and policy integration, and could also be adapted to Army environmental planning. Other business tools that can be useful to Army environmental planning are scenario analysis, maximizing value added as a decision criterion, and the formation of strategic alliances. These business planning concepts incorporate many of the success elements, and can be used in parallel with, or as a part of, the policy integration process.

A three-tier (or three phased) approach may prove useful. The first tier could use the principles of NEPA as the regulatory foundation and rationale for environmental integration. The second tier could demonstrate a tone of leadership commitment through organizations such as the SEEC (which could be re-created at MACOM and installation levels), and the establishment of improved tools for information exchange. Planners can also anticipate thoughtful input from the Environmental Strategy for the 21st Century currently under development. The third tier could use the industrial success elements to determine reasons for historical inabilities to achieve integration, and to identify elements that can be adapted to specific situations. Adoption of the three-tier approach could also help the Army respond creatively to challenges posed by emerging global policy concerns and changing world conditions.

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APPENDIX A ENVIRONMENTAL INITIATIVES AND RESPONSIBLE AGENCIES

- The Commander's Environmental Handbook - provides an introductory guide and reference to all federal environmental compliance statutes (THAMA)
- Hazardous Materials Tracking System (ODCSLOG)
- The Environmental Compliance Assessment System (ECAS) - A program to provide assistance to active Army installations, Army Reserve Centers, and Army National Guard sites in determining the status of compliance with environmental laws and regulations, developing corrective action plans, and providing environmental managers at all levels with an accurate picture of the Army's compliance posture worldwide [OCE, ASA(IL&E), THAMA]
- The Defense Environmental Electronic Bulletin Board System (DEEBBS) -is expected to increase the timeliness and effectiveness of distributing DOD policy decisions and guidance to military departments (DOD)
- The Army Environmental Response and Information Center (ERIC), -established to offer senior Army leadership up-to-date information on the overall status of the environmental program, including determining environmental requirements, compliance tracking, and trend analysis to identify systematic problems (OCE)
- The Army Environmental Compliance Achievement Program (ECAP) - tracks environmental program resources from all appropriations, to improve funding of environmental requirements in the budget process, and enable managers to target resources on the highest priority compliance projects [ASA (IL&E)]
- Army Environmental Training Master Plan (AETMP) - targeted to raise environmental awareness through programs of instruction at all levels from the individual soldier to the Army's senior leadership (THAMA, TRADOC)
- The Computer-Aided Environmental Legislative Data System (CELDS)- provides federal and state environmental regulation abstracts for Army planners and environmental officers (CERL)
- The Geographic Resources Analysis Support System (GRASS) - allows Army environmental and land managers to analyze, store, update, model and display geographic data quickly and easily (ETL, CERL)
- The Integrated Training Area Management System (ITAMS) -a six component system for optimizing the resources of training areas to meet both conservation and mission support needs. One component of ITAMS, the Land Condition Trends Analysis (LCTA) was recently upgraded to include endangered species and wetlands inventories (CERL, EHSC)

APPENDIX B FUNCTIONAL RESPONSIBILITIES FOR CONSERVATION OF NATURAL RESOURCES

AR 200-1 describes in broad terms the responsibilities of various functional proponents and their agencies. AR 420-74 provides specific guidance on management and conservation of natural resources, such as land, forests, and wildlife. At Department of the Army level, the ASA (IL&E) is responsible for Army environmental programs, and provides overall policy and guidance. Headquarters, Department of the Army, the Army Staff functional proponent for environmental activities is the Chief of Engineers (COE). The Assistant Chief of Engineers acts on behalf of the COE to manage the Army environmental program. Commanders of Major Commands (MACOMS) are responsible for establishing the organizational structures for implementing Army environmental policies and programs, and providing support with public affairs, legal assistance, program review, reporting, programming and budgeting. MACOMS also monitor the environmental projects and activities of their subordinate commands, ensure that installation commanders provide sufficient staffing to comply with environmental regulations, and coordinate environmental activities with HQDA.

Beyond these levels, AR 200-1 requires various functional proponents and their agencies to provide assistance in relevant policy areas. Those specifically named include the Assistant Secretary of the Army for Financial Management, the Assistant Secretary of the Army for Research, Development and Acquisition, the General Counsel, the Chief of Public Affairs, the Surgeon General, Army Health Services, the Army Safety Office, the Chief of Staff for Operations and Plans, and several designated Major Commands.

Listed below are other specific responsibilities for conservation of natural resources.

Conservation of Natural Resources

- HQDA, DCSOPS - Responsible for establishing training policies, setting training standards, and identifying training land requirements
- CG, U. S. Army Corps of Engineers (CG, USACE) - Conducts a research program for restoring physically damaged training lands.
- MACOMS - Ensure that ICs provide sufficient staffing to achieve compliance with all environmental regulations.
- IC - Integrates activities to protect and conserve environmental and natural and cultural resources into the planning and execution of the command's basic mission, oversees all construction, and signs all environmental permit applications, coordinates with MACOM on compliance needs, and ensures that all tenants are knowledgeable of, and comply with, environmental laws and regulations.
- PAO - Conducts all public affairs activities related to environmental impact statements (EISs) or environmental assessments (EAs).
- TJAG - Interprets regulations, advocates and promotes compliance by Army entities with all applicable federal, state, regional and local requirements, and Army policies. Provides advice and guidance to DA officials, MACOM commanders and ICs on their legal responsibilities. Reviews all compliance agreements and serves as legal counsel in environmental litigation.
- Supervisors (Training Managers, Land Managers, Maintenance Managers) - Enforce proper workplace procedures and practices.