DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
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Regulation
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Environmental Quality
POLICY FOR IMPLEMENTATION AND INTEGRATED APPLICATION
OF THE U.S. ARMY CORPS OF ENGINEERS (USACE)
ENVIRONMENTAL OPERATING PRINCIPLES (EOP) AND DOCTRINE

1. Purpose. This regulation provides specific policy and guidance for implementation and the integrated application of USACE's Environmental Operating Principles (EOP) and associated doctrine across the full spectrum of USACE's program management initiatives and business processes.

2. Applicability. This regulation is applicable to all Headquarters, U.S. Army Corps of Engineers (HQUSACE) elements, and all USACE Command, and Laboratory echelons.

3. Distribution. Approved for public release; distribution unlimited.

4. Reference: USACE Environmental Operating Principles and Implementation Guidance, Appendix A, attached.

5. Definitions. See Appendix A .

6. Policy. It is the policy of the USACE that the EOP and associated doctrine contained in Appendix A will, to the extent legally and financially practical, guide all appropriate USACE management initiatives and business processes. To this end, all HQ elements, Command and Laboratory echelons will seek to achieve total integration of the EOP and associated doctrine into all corporate business processes as developed by the project management business process. This policy integration requirement encompasses the full spectrum of USACE activities, including planning, design and construction, operations and maintenance, regulatory, research and development, acquisition, real estate and support for others.

7. Discussion.

a. General. This regulation provides policy and guidance for implementation of the EOP and associated doctrine within all USACE business processes and management initiatives.

b. The EOP and associated doctrine highlight USACE's roles in, and responsibilities for, sustainability, preservation, stewardship and restoration of our Nation's natural resources and those of other countries in which we conduct activities. These principles and associated doctrine are based on the premise that through the restoration and maintenance of environmental health and productivity, both economic development and social equity can be achieved. Further, these principles and associated doctrine require a focus on achieving greater synergy between environmental sustainability and the execution of USACE activities to bring about new and innovative solutions. USACE's intent is that the principles and doctrine

be fully integrated into the program management business process such that their consideration becomes part of daily decisions and actions.

8. Responsibilities. All HQ elements, Command and Laboratory echelons will, to the extent legally and financially practicable, strive to integrate the EOP principles and associated doctrine into program management business practices across the full spectrum of USACE activities.

FOR THE COMMANDER

FOR: Steven J Cade MAJ, EN SGS

MICHAEL J. WALSH
Colonel, Corps of Engineers
Chief of Staff

Attachment a/s

Appendix A

US Army Corps
of Engineers®

USACE Environmental Operating Principles and Implementation Guidance

TABLE OF CONTENTS

- THE CHALLENGE AND PATH AHEAD
- ENVIRONMENTAL OPERATING PRINCIPLES
- DOCTRINE

1. Strive to achieve Environmental Sustainability
2. Recognize the interdependence of life and the physical environment
3. Seek balance and synergy among human development activities and natural systems
4. Continue to accept corporate responsibility and accountability under the law
5. Seek ways and means to assess and mitigate cumulative impacts to the environment
6. Build and share an integrated scientific, economic, and social knowledge base
7. Respect the views of individuals and groups interested in Corps activities

- Appendix

  - GLOSSARY

THE CHALLENGE AND PATH AHEAD

All life on earth depends upon the physical environment. While stating a reverence for nature, humans are also compelled to control it, to build shelter and harvest food. But since the industrial revolution, we have gone well beyond subsistence. Our scientific and technological capability has added enormously to our quality of life. However, those capabilities have also created environmental impacts that now span the entire globe. Despite our increasing inclination to dominate nature, we remain fully and totally dependent upon the natural world. We require its bounty – fresh air to breathe, clean water to drink, and oceans and fertile soil for food. Because survival depends upon sustained and balanced ecosystems, environmental concerns are becoming an increasingly important part of all U.S. Army Corps of Engineers' missions, decision-making, programs, and projects.

The purpose of the USACE Environmental Operating Principles is to illuminate the ways in which the U.S. Army Corps of Engineers' missions must be integrated with natural resource laws, values, and sound environmental practices. They are meant to give "corporate coherence" to the Corps work, so that people everywhere will recognize the Corps roles in, and responsibilities for, sustainable use, stewardship, and restoration of our Nation's natural resources and those of other countries in which the Corps conducts activities. And finally, the Environmental Operating Principles make evident the connection among water resources, protection of environmental health, and the security of our Nation. The Principles are vitally important to our participation in sound environmental stewardship during the Army's Transformation.

This doctrine, as an elaboration of the Environmental Operating Principles, begins to develop the direction we must take to achieve greater synergy between environmental sustainability and execution of USACE civil works and military activities. The new direction will require all of us to change our views, expectations -- our mental models if you will -- and our understanding of how our activities impact the natural world. As Peter Senge wrote about the challenge of changing mental models in *The Fifth Discipline* (1999), "We have a tendency to see the changes we need to make as being in our outer world, not in our inner world. It is challenging to think that while we redesign the manifest structures of our organizations, we must also redesign the internal structures of our 'mental models.' Our mental models are the medium through which the world and we interact. They are inextricably woven into our personal life history and sense of who we are." The challenge for us is to assure that everyone from across the Corps adjusts their mental model of our environmental responsibilities in accordance with this doctrine, while making daily project decisions and taking actions on behalf of the Corps. These individual adjustments will result in an organizational culture change over time.

The Corps recognizes that some people believe simultaneous attempts to achieve environmental sustainability and economic development are antithetical forces. The Corps does not hold this position but rather understands that we can choose to design and act either in conflict with nature or in ways that take inspiration from nature and are modeled after it. As we seek more synergy and balance, this doctrine will serve to inform and guide all Corps decisions, set within the context of the Corps Program Management Business Process.

Environmental Operating Principles

As an integral part of our mission, the Army Corps of Engineers will be a national leader in environmental and natural resource stewardship for present and future Generations.

Today, the United States Army Corps of Engineers (Corps) performs multi-faceted military and civil missions in service to the Nation. These missions have both direct and indirect impacts on our natural environment. From its beginning as George Washington's engineer during the Revolutionary War, the Corps role in the life of America has steadily evolved and expanded. As a nation builder in the 19th century, the Corps helped map the frontier and survey roads and canals. In the 19th and early 20th centuries, the Corps built Army fortifications on the coast. Beginning with World War II, the Corps was given responsibility for construction of Army and, later, Air Force installations worldwide. The Corps fostered economic development of the Nation's vast navigation system to promote interstate and international commerce, and kept vital ports and harbors open. The Corps also supported the Nation's early conservation efforts, including work to establish our first National Parks. The Corps civil works mission expanded to include flood control, disaster relief, hydropower, water supply, and recreation. As society's needs and values have changed, the Corps responded with programs for wetlands and shore protection, environmental cleanup, and natural resources restoration.

Our goal was to develop Environmental Operating Principles that are broad enough to apply to this range of activities, and yet concrete enough to meaningfully guide the environmental responsibilities of the Corps in the future. The Corps, as part of the Army, continues to embrace the "four pillars" of the Army's environmental strategy summarized as follows:

- Giving immediate priority attention to sustained compliance with environmental laws and regulations
- Continuing to restore previously contaminated or impaired sites both within the Defense complex and for our civil customers, as expeditiously and fully as resources permit
- Focusing on preventing pollution and natural resources damage
- Conserving, preserving, and restoring natural and cultural resources

When the National Environmental Policy Act was passed in 1969 and signed into law on January 1, 1970, the United States established a national policy to "encourage productive and enjoyable harmony between man and his environment; promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enrich the understanding of ecological systems and natural resources important to the Nation." It is striking how contemporary this statement is and how well it and the Army's "four pillars" serve as a springboard for the Corps Environmental Operating Principles:

1. Strive to achieve Environmental Sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.

2. Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of Corps programs and act accordingly in all appropriate circumstances.

3. Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.

4. Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.

5. Seek ways and means to assess and mitigate cumulative impacts to the environment; bring systems approaches to the full life cycle of our processes and work

6. Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.

7. Respect the views of individuals and groups interested in Corps activities, listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the Nation's problems that also protect and enhance the environment.

These principles will be integrated into the Program Management Business Process and other Corps decision-making at the earliest stage possible. The Corps culture must embrace these principles across all programs and projects to make them a reality.

DOCTRINE

1. Strive to achieve Environmental Sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.

Elaboration of Principle 1

The United States Army Corps of Engineers joins all federal agencies, state and local governments, and the private sector in collaborative efforts to achieve environmental sustainability. This Principle states the ultimate goal of all the Environmental Operating Principles and echoes the commitment of environmentally responsible people throughout the world. Environmental sustainability is an aspiration that can only be achieved by the combined efforts of governmental and non-governmental actors around the globe, each doing their part, backed by the citizens of the nations of the world.

Sustainability was first placed on the international agenda in 1987 by a special United Nations (UN) independent commission led by Dr. Gro Harlem Brundtland, former Prime Minister of Norway. The Brundtland Commission defined sustainability as " … development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The Commission went on to observe that "Sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs." In 1992 the Army's Environmental Strategy challenged Army leadership to recognize environmental stewardship as a strategic leadership function required for the wise management of resources. Stewardship was supported by the four pillars of **compliance** with environmental statutes; the **restoration** of contaminated sites; the **prevention** and elimination of pollution; and, the **conservation** and preservation of natural and cultural resources for future generations.

The President's Council on Sustainable Development (PCSD Report of February, 1996) defined sustainability as a balancing of three major elements: environmental health, economic prosperity and social well being. The Council further noted that these elements cannot be addressed successfully in isolation from one another, but must be integrated in order to achieve sustainable solutions. Later (1998), a joint effort between the UN Educational, Scientific and Cultural Organization (UNESCO) and the American Society of Civil Engineers (ASCE) examined sustainability in the context of water resources system design and management. This joint UNESCO/ASCE effort defined sustainable water resource systems as "those designed and managed to fully contribute to the objectives of society, now and in the future, while maintaining their ecological, environmental and hydrological integrity."

For purposes of this doctrine, the Corps defines environmental sustainability as "a synergistic process whereby environmental and economic considerations are effectively balanced through the life cycle of project planning, design, construction, operation and maintenance to improve the quality of life for present and future generations." This definition is consistent with that developed by the Brundtland Commission, the three major elements of the PCSD, and the specific definition as it relates to water resources adopted by UNESCO/ASCE.

Situational Awareness

Since release of the Brundtland Commission's report, a great deal of effort has been devoted to further defining and operationalizing the concept of sustainable development. In both developed and developing countries, we've witnessed the impacts of human activities upon the Earth accelerating at a rate unforeseen just a few decades ago. With the population of 6 billion people increasing rapidly, the carrying capacity of natural resources in many areas of the world is being stretched and broken. Because of our dependence on natural resources and the environment, the Corps, in executing its authorized programs, must strive to sustain our Nation's ecology while providing the national and international services that the Army and society require for national security, economic stability, and improved quality of life.

Relationship to Corps Missions/Activities

Achieving environmentally sustainable solutions requires collaboration among federal, state and local government agencies, and non-governmental organizations. This collaboration must also occur in the execution of our military mission to plan for and implement the environmental sustainability needs of the transforming Army and ultimately, the Objective Force. The best available scientific methods and information should be utilized in this effort. Above all, Corps efforts should focus on identification of reasonable and innovative alternatives and their objective evaluation to achieve sustainable solutions in civil works and military support activities.

Environmentally sustainable solutions are achieved by linking environmental and economic needs. For example, at the Marine Corps Camp Lejeune in North Carolina, military and civilian personnel worked alongside local, state, and regional stakeholders to design a sustainable installation. Their efforts touched upon 400 aspects of base operations that had significant environmental impacts including construction, maintenance, amphibious training, weapons cleaning, tactical equipment painting, green building design, procurement, energy and water conservation, alternative fuel vehicles, and bio-diversity. Their efforts produced a practical environmental management plan that enabled the Marine Corps to improve environmental performance through better resource allocation, assignment of responsibilities, and continuous evaluation using specific metrics.

The Camp Lejeune experience in successfully implementing environmentally sustainable solutions to installation problems is an excellent model for both our military and civil works programs.

2. Recognize the interdependence of life and the physical environment, and consider environmental consequences of Corps programs and activities in all appropriate circumstances.

Elaboration of Principle 2

The interdependence of life and the physical environment refers to the dynamic and mutually dependent relationship among all life forms – including our own species — and the Earth's life support systems. As more ecological evidence is developed, it is becoming abundantly clear that human activities are having effects unanticipated several decades ago. Physical changes leading to environmental damage range from climate changes to the accelerated loss of species. Consequently, the Corps must recognize the effect of its activities on the life support systems and consider the consequences of its activities on the environment from both the scientific and legal perspective. Recognizing the interdependence of life and the physical environment challenges us to find synergy between the environment and our activities and to consider what kind of planet we ultimately want for ourselves and future generations. While science and engineering will help illuminate what is possible, this question must be resolved on the basis of what we, as a Nation, value and how we, as an executive agency of the Federal Government, evaluate the long-term implications of our mission execution.

Situational Awareness

The impacts of human activities upon the Earth have expanded to a point where natural systems are being overwhelmed. An example of particular significance to the Corps would be freshwater ecosystems – the diverse communities found in lakes, rivers, and wetlands. Research has identified these ecosystems as among the most fragile and endangered of all major ecosystem types, facing increasing threats from pollution, water withdrawals, and overfishing. In addition to being ecologically rich, freshwater ecosystems play a vital role in the lives of people, providing a source of drinking and irrigation water, food, recreation, and employment. The majority of the world's population lives near or adjacent to waterways; therefore, our future treatment of this ecosystem is especially important to achieving environmentally sustainable development.

Until recently, the availability of clean, abundant supplies of water for cities, agriculture and industry was taken for granted. Today, however, our Nation faces the depletion of aquifers, lakes that are receding due to diversions, and the decline of quality wetlands. In the United States alone, water use increased from 330 million gallons a day in 1980 to 408 million gallons a day in 1990--a huge leap despite a decade of increased water conservation efforts. These facts point to the conflict emerging in water resources policy between consumptive use and the long-term needs of aquatic ecosystems. A similar set of issues was identified in the Corps recent series of "Listening Sessions." In these sessions, held during the summer and fall of 2000, many members of the public noted that they expect the federal government to seek solutions that balanced economic and environmental needs, clearly a role for Corps programs and activities.

Similarly, our Nation's military services recognized that operational training, facility development, and environmental restoration needs must be undertaken in an atmosphere that integrates considerations of all environmental factors within the planning process.

Relationship to Corps Missions/Activities

The focus of Corps efforts, whether addressing the civil works or military needs of the Nation, should be centered on optimizing the use of our dwindling resources, on development of more environmentally efficient facility and project engineered systems, and on promoting utilization of design and engineering techniques which serve to improve ecosystem sustainability. The Corps water resources program has traditionally focused on managing the frequency and distribution of freshwater to meet the needs of a traditional, easily identifiable set of users – for flood control, agriculture, navigation, recreation, and water supply purposes. Only recently have increasing development costs, government fiscal restraint, diminishing sources of water, and a growing concern for the environment forced water managers at all levels of government to transition from a water-supply development mentality, to a water-demand management and conservation mentality. Now and in the future, Corps water management will seek to optimize the use of existing surface-water projects to address multiple objectives of flood control, navigation, agriculture, water supply, and the restoration of aquatic ecosystems.

Yet water is only one of many elements of the physical environment that we must consider in our analysis of project impacts. After all, there's virtually no natural ecosystem in the United States that hasn't been affected, either directly or indirectly, by human engineering. As the Nation's leading environmental engineering agency, the Corps should use its position to heighten awareness on the part of the Nation's civil and military leadership on the interdependence between the environment and mission execution. The Corps leadership will strive to secure adequate information on the environmental consequences of proposed actions to allow an objective assessment of all reasonable alternatives in the decision process. Consistent with this approach, in the execution of our programs and activities, the Corps will endeavor to identify and prioritize degraded ecosystems and develop alternatives for their restoration within the context of our environmental program authorities.

3. Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.

Elaboration of Principle 3

This Principle takes the goal of achieving environmental sustainability a step further by pointing the way towards procedures that will enable us to achieve balance between human activities and sustaining the earth's ecosystems. Operationally, this Principle requires that Corps employees endeavor daily to develop options for action that not only achieve their stated goal, but also protect the environment and our quality of life. To achieve environmental sustainability, the Corps must examine all existing procedures and policies within the Project Management Business (PMB) process

and incorporate important and relevant environmental and economic factors if they have not already been made a routine part of the PMB process. The Principle states that it is essential to constantly improve models for the analysis of developmental activities and their impacts, a concept specifically elaborated upon in Principle 6.

The models should integrate the value of natural resources development ("expenditures" such as use, extraction, etc.) with environmental enhancements ("deposits," ecosystem restoration, clean up activities, etc.) to give us a more realistic picture of the impacts and positive contributions of these activities upon natural systems. With these enhanced models of reality, we can improve our understanding of the ways projects and activities can achieve traditional services, such as flood control, navigation, and military construction in an environmentally sustainable manner.

Situational Awareness

The tools necessary to evaluate and measure environmental sustainability factors are in the early stages of development. To further improve our capabilities, we must focus our expertise, improve our evaluation techniques, and enhance our capability to objectively portray and share the results of these evaluations with all stakeholders. An example of this innovative process was the development of the so-called "Green Building" concept. The purpose of this concept was to focus efforts on planning and design with environmental compatibility as a goal. Early in that concept's development, a great deal of criticism was levied at the design concept as being too expensive. Since then, experience in planning, design, construction, and evaluation of the concept has demonstrated that these criticisms were based not only on a reluctance to change more conventional design and construction practices, but equally as important, on the failure of existing cost analysis systems to track real environmental costs of certain conventional design and construction that encouraged the inefficient use of resources. Design for environmental sustainability is more than a manifestation of an efficiency agenda. It is a means to demonstrate that any design, program, project or action can be scrutinized to achieve greater synergy with environmental considerations, but it requires innovative thinking and the willingness to take risks.

Relationship to Corps Missions/Activities

This Operating Principle is a directive to each employee of the Corps, each manager and supervisor, and each policy maker to examine doctrine and procedures to seek balance between economic and environmental factors. The Corps is developing a cross-walk with existing procedures and policies within Civil Works and Military Programs to do just that.

Collaboration with other agencies, stakeholders, and citizen groups, as addressed in Environmental Operating Principles 6 and 7, will be essential to this process. For this level of synergy to happen, we must daily consider and balance economic and environmental concerns. To do so will require the Corps to move beyond traditional success criteria of cost, performance, and timeliness. Corps measures of success should also incorporate such metrics as the use of innovative technologies, materials, and designs to lessen the stress on the environment made by our facilities and activities. The new measures must be understandable and attainable. They should

cover both individual projects as well as macro project trends. They should not add significant complexity to the field's current Project Reviews and the Headquarters Command Management Reviews.

4. Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.

Elaboration of Principle 4

The Army's Environmental Stewardship function is supported by a "pillar" that emphasizes the need for a continued focus on compliance with environmental laws. The soundness and the underlying justification for this Pillar are obvious. The values of environmental sustainability have in large part already been incorporated into the Nation's laws and mandates to governmental and private actors.

Since 1986, numerous environmental provisions have been added to the Corps civil works authorizing legislation governing various aspects of the Corps water resources program. Moreover, the Corps direct environmental role has expanded to include conducting significant cleanups of environmentally damaging contamination at military and other sites under Defense Environmental Restoration Program (DERP) and Superfund related legislation. Both the Department of Defense and the Army have issued definitive policies relating to the land and other resources under their stewardship, and have undertaken a program of environmental restoration activities at both active and formerly used defense sites. Additionally, the Army initiated a Sustainable Design and Development Program fostered by the Corps which is aimed at meeting today's needs without compromising the ability of future generations to plan, design, construct, and expand in an environmentally sound manner on military installations. These civil works and military programs activities are executed within the complex framework of the Corps authorization statutes and in accordance with our Nation's environmental laws and regulations. There is ample precedence for the Corps to undertake environmental activities that contribute to sustainable solutions both for the Army and the Nation.

Perhaps the statute that provides the strongest basis for achieving sustainable solutions is the National Environmental Policy Act of 1969 (NEPA); 42 U.S.C. 4321-4347, which establishes a national policy to " …encourage productive and enjoyable harmony between man and his environment; promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enrich the understanding of ecological systems and natural resources important to the Nation…" In addition to NEPA, the planning framework established in the Water Resources Council's Principles and Guidelines (P&G) is an important procedural guide for seeking sustainable solutions in civil works water resources projects. The P&G states that the federal objective of water and related land resources development is to contribute to national economic development in ways that are consistent with protecting the Nation's environment.

Situational Awareness

The values of responsibility and accountability are the behavioral attributes that are at the center of how the Corps will achieve the goal of environmental sustainability in its projects and activities. Responsibility is recognizing and accepting what is expected of one's self, both professionally and personally. Accountability is the willingness to answer for one's behavior. Together, they form an essential framework for our actions. In their absence, people and institutions lack the mechanisms to assess and check their behavior against societal standards and expectations.

What is the link between responsibility and accountability and ensuring that natural systems and the quality of life as well as economic development are protected and encouraged? Responsibility and accountability must apply to all aspects of our work – administrative, technical, scientific, managerial, and in the relationships associated with these functions. To achieve environmental sustainability, engineers, environmental designers, and other practitioners must do more than what is merely convenient or conventional. We must be responsible for ensuring that everything we do is within the law. Failure to abide by the standards established by laws such as the Resource Conservation and Recovery Act, the Endangered Species Act, the Clean Water Act, the Safe Drinking Water Act, or the Clean Air Act may result in civil and criminal enforcement actions against both the Corps and individuals involved. For exampe, in 1999, 62 defendants were named in 59 federal environmental enforcement actions. While civilian federal agencies (including the Department of Energy) accounted for 33 of these actions, the Department of Defense accounted for the remaining 26, nearly half.

But more than accountability under the law, we must ensure that we stay abreast of the cutting edge of our professional disciplines and seek new and innovative technologies and solutions, encourage collaborative efforts, and effectively utilize the multiple assets these efforts will produce to yield sustainable solutions. There has been a growing awareness in corporate America of the responsibilities that organizations have towards the environment and economic development. In the private sector, the Coalition for Environmentally Responsible Economies (CERES) is an example of a growing network of private companies and organizations willing to be responsible for living up to environmental principles. CERES is an organization of over 120 non-governmental organizations and major companies, including American Airlines, Bank of America, Coca Cola, USA, Consolidated Edison, Ford Motor Company, General Motors Corporation, Nike Inc., Polaroid Corporation, and Sunoco Inc. It represents the growing understanding among companies and organizations that their economic health and market credibility rests upon the development of products and services which sustain environmental and public health. Further they also understand the need to accurately report on these products and services. Similarly, the Army Environmental Strategy challenges Army leaders to expand the scope of their responsibility and incorporate a more comprehensive and coordinated approaches to environmental stewardship. An approach aimed at increasing the Army's overall capability to define requirements, develop doctrine, train people, acquire systems, manage installations, reduce costs, and operate across the full spectrum of conflict.

Individual and corporate credibility springs from accepting responsibility and accountability. An organization's credibility is affected not only by being responsible and accountable in the short term, but also for the long-term effects of its actions. Accepting corporate responsibility also means continuously deepening our understanding of what is needed to attain environmental sustainability, and then supporting the necessary actions to make it happen whether through legal, organizational, and/or engineering and scientific means.

Relationship to Corps Missions/Activities

Today, the public has higher expectations relative to environmental protection than in the past. Many elements of environmental protection are mandatory requirements of the law. Public service agencies are expected to have strong environmental orientations and to show proof of progress toward achieving environmental goals. This can be challenging for the Corps given the needs of the various organizations and programs we support. Our missions and activities are extremely diverse, ranging from the cleanup of hazardous and toxic waste and the design and construction of facilities on both military and civil sites, to the beneficial use of dredged material to create and restore damaged aquatic ecosystems, to the protection of citizens and their property from damaging flood events, and on to our cooperation with other federal and state agencies in response to natural and manmade disasters.

As a result, the Corps as a whole must work to be responsible and account for all of its activities, both in terms of process and outcomes, relative to environmental sustainability. Accountability begins with an understanding of the importance of achieving a sustainable world; setting expectations for changes in both individual and corporate behavior; stating clear objectives to be met for every project and activity; and researching and providing sound indicators for the evaluating and reporting environmental sustainability achievements in our projects and/or activities.

5. Seek ways and means to assess and mitigate cumulative impacts to the environment; bring systems approaches to the full life cycle of our processes and work.

Elaboration of Principle 5

The definitions of key terms are essential to understanding this Operational Principle:

"**Cumulative impact**" is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (NEPA/President's Council on Environmental Quality (CEQ) Regulations - 40 C.F.R. §1508.7)

"Mitigate" -- Acting in a manner that improves or modifies a program, project, or decision for the benefit of the environment. To reduce; make less severe; alleviate or eliminate the environmental effects or impacts of individual or cumulative actions.

"**Seek ways and means"** -- To make good faith efforts to continue research efforts in developing solutions to complex problems, and to secure funding and other support to continuously improve our ability to assess and mitigate impacts on the environment. This phrase recognizes that science and technology do not yet exist to assess cumulative impacts in every case. Moreover, such assessments, and resulting proposals for mitigation, require funding.

Two crucial documents provide the most definitive analysis explaining cumulative impacts. The first is "Considering Cumulative Effects Under NEPA" (CEQ, 1997). This handbook has been called "the most comprehensive and useful information to date on practical methods for addressing cumulative effects in NEPA documents," by the Environmental Protection Agency (EPA). The second document is "Consideration of Cumulative Impacts in EPA Review of NEPA Documents" (EPA May 1999). This EPA document relies heavily on the CEQ handbook as its chief source of information.

Brief elaboration on the concept of cumulative impacts is presented here because of its critical importance to this Environmental Operating Principle. "The purpose of cumulative effects analysis is to ensure that federal decisions consider the full range of consequences of actions. Without incorporating cumulative effects into environmental planning and management, it will be impossible to move towards sustainable development, i.e. development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Considering Cumulative Effects Under NEPA, CEQ 1997)

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis. While impacts can be differentiated by direct, indirect, and cumulative effects, the concept of cumulative impacts takes into account all identifiable disturbances, since cumulative impacts result in the compounding of the effects of all actions over time. Thus, the cumulative impacts of an action can be viewed as the total effects upon a resource, ecosystem, and/or human community of that action and all other activities affecting that resource no matter what entity (federal, non-federal, or private) is taking the actions. Consistent with the CEQ regulations (CEQ, 1987), effects and impacts are used synonymously in their guidance and in the Corps Environmental Operating Principles. CEQ's regulations (CEQ, 1987) explicitly state that cumulative impacts are to be evaluated along with the direct effects and indirect effects of each alternative. The Supreme Court has long held that the scope of the evaluation of such cumulative impacts is within the discretion of the implementing agency. Clearly, this must be done on a case-by-case basis within the Corps.

Situational Awareness

This Principle is a commitment by the Corps to seek methods for both analyzing and then taking appropriate action to mitigate cumulative environmental impacts from Corps plans, programs, projects, and actions. Where necessary and appropriate, the Corps will seek the funds required to accomplish the assessments and mitigation. In some instances those assessments will be based on factual information and proven science. In other cases, little will be known about the precise impacts being addressed. In such instances, the Corps will attempt to continually improve its information base for producing sound assessment and mitigation plans. See Environmental Principle 6, which is related.

Recognizing that proper assessment of possible environmental impacts of proposed federal action is the first step in acting in an environmentally responsible manner, numerous environmental laws already require such assessments. The cornerstone of the National Environmental Policy Act (NEPA) is the environmental impact assessment (EA). The hazardous waste laws all require similar assessments in cleanup and restoration activities.

We need to appropriately collaborate with CEQ, EPA, the US Fish and Wildlife Service (FWS), the National Oceanic and Atmospheric Administration (NOAA), the US Department of Agriculture (USDA), and various non-governmental organizations (NGOs)to identify those existing processes that are reliable for analyzing cumulative impacts. We need to take advantage of ongoing and future research into this complex and difficult area of environmental impact analysis. When considering cumulative impact analysis it is important to consider, where appropriate, the entire watershed and the numerous activities that could potentially contribute to the impacts. Cumulative impacts should be considered during the entire life cycle of Corps activities including design, construction, and operation and maintenance.

Relationship to Corps Missions/Activities

Most Corps civil works and military programs already have an active environmental assessment and mitigation component. For example, all of our existing projects constructed since the passage of NEPA have significant mitigation actions associated with them. This Principle stresses that assessment and mitigation be addressed early, and throughout a project's or program's life cycle using the best scientific information available. It also calls for additional research in building assessment and mitigation tools -- which transitions directly to our next principle.

6. Build and share an integrated scientific, economic and social knowledge base that supports a greater understanding of the environment and the impacts of our work.

Elaboration of Principle 6

The Corps laboratories and experienced workforce position the Command to lead the way in developing the scientific, economic, and sociological measures used in evaluating the effects of our various projects, both civil and military, and ultimately providing an objective and reliable basis for assessing environmental impacts and benefits of a proposed program or project. The continued development of this knowledge base will also require outreach by the Corps to centers of expertise elsewhere in the government and in the private sector. Such action is consistent with the requirement in the Corps Strategic Vision to sustain recognition for its technical and professional excellence and stand ready to serve the Army and the Nation.

Our competent Corps workforce is one comprised of professionals from many disciplines, and is a strength that contributes to the Corps continued excellence in understanding and cooperating with environmental concerns among our project sponsors, other federal, state and local agencies, NGOs, and the Nation's professional engineering and design community. The Corps must be among the leaders in fostering greater appreciation and acceptance of the need for consideration of environmental sustainability factors, while meeting the Nation's civil and military needs.

The maturity of the sciences in the various disciplines involved in these activities is varied. For instance, our knowledge of ecosystem functions is incomplete when compared to the engineering sciences. Nevertheless, the Corps will use this knowledge to focus our research and development (R&D) efforts, and leverage those of others, to find better ways of achieving environmentally sustainable solutions in the future.

Situational Awareness

This Nation's declining enrollment in science and engineering programs in our institutions of higher learning will result in a dwindling pool of qualified science and engineering professionals in the future. This will result in increasing competition for these skilled professionals from employers such as the Corps. Given this situation, the Corps must effectively utilize any specialized environmental expertise that it possesses. It also must have the capability to tap into sources of expertise that exist among other professional organizations, and federal, state and local agencies. Its success will depend on its ability to anticipate environmental problems of regional and national significance, to quickly identify the appropriate areas of technical knowledge required, and to energize interdependent knowledge coalitions both within and outside of the Corps to bring the appropriate expertise to bear on resolving the problem confronted.

The process whereby environmental sustainability factors are identified and evaluated as an integral part of the Corps program execution is a relatively new initiative that has yet to fully mature. It will evolve over time and require the input of other interested stakeholders, as further addressed in Environmental Operating Principle 7. Thus, the Corps should actively engage these interests in the development and implementation of this process.

Relationship to Corps Missions/Activities

The Corps must continually identify its knowledge needs and resources. Corps leaders will be challenged to develop both internal and external networks that will provide efficient and timely access to information sources that will meet those knowledge needs. It also will be required to assure that others recognize and understand the extent of its knowledge resources and are provided effective channels for accessing such resources when required. Our managers should lead people to knowledge sources both within and outside of the Corps (e.g., other Army MACOMs, other federal, public, and private stakeholders). They must be able to foster cooperation and build teams with other knowledge agencies; confront and resolve both technical and social conflicts between those agencies; and, finally, develop information in support of decisions. This will demand a sophisticated human resources management style that is capable of developing people's learning capabilities by optimally developing, cross training, and positioning workers.

The Corps knowledge needs must address the environmental issues associated with current Army operational readiness concerns (e.g., unexploded ordnance cleanup, energy consumption, training range availability, etc.) as well as those arising from our performance of our many diverse civil works activities (e.g., using watersheds as an organizing principle; seeking greater balance between economics and environmental issues; sponsoring better monitoring activities; achieving environmentally sustainable solutions, etc.).

Corps leaders will have to foster a greater understanding among Corps members of the necessity for sound environmental knowledge as applied to project activities, and the learning, theory, and practice of environmental sciences in concert with the engineering and related professions. In essence, the cornerstones of the Corps environmental knowledge direction will need to include: professional environmental education of all Corps members, an internal environmental educational media effort, linking the Corps with community environmental efforts, and using Corps projects as hands-on learning and stewardship pilots for communities and educators.

As the Corps supports the Army and the Nation in solving the challenges of environmental sustainability, we must plan for future learning by filling talent voids through partnerships and personnel exchange mechanisms at the local, state, national and even international levels. This is likely to require us to work more closely with schools and universities to develop interest in the sciences and engineering.

The Corps has made a large investment in knowledge sharing through the Engineering Research and Development Community, long term training, etc. Measures need to be put in place to assure that the Corps as a whole is realizing the full potential of the benefits from these activities.

Similar to the challenges within the Corps innovative technology program, part of the challenge is designing systems (and people's use of these systems) that will deliver specific information to the people that need it. The Corps must make better use of the existing digital infrastructure if it is to be effective in terms of efficient, comprehensive knowledge acquisition, deliberation and decision-making.

7. Respect the views of individuals and groups interested in Corps activities; listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the Nation's problems that also protect and enhance the environment.

Elaboration of Principle 7

All paradigms for solving societal problems are inherently incomplete, as the revolutionary analysis of mathematician, Kurt Gödel, demonstrated. Individuals and organizations outside the Corps have different mental models of the environmental issues we face as a Nation. Such individuals and organizations often have significant insights to contribute to the potential environmental solutions the Corps evaluates. Today, perhaps more than any other time in our history, we face very complex problems with economic and environmental factors that often appear to be at odds with one another. However, the diversity of opinions and ideas within our institutions provides a fertile ground for innovation. We need to encourage this type of dialogue and listen to what our citizens and organizations have to say.

This principle also charges the Corps to actively seek involvement of scientists, engineers, and other experts in academia, the private commercial sector, public interest groups and other interested federal, state and local authorities, and listen to their concerns with objectivity. The Corps recognizes its obligation to promote the interests of the Nation rather than the well-being of only those that most directly benefit from either a civil works or military action being taken.

Situational Awareness

From June through November 2000, the Corps of Engineers conducted 14 regional Listening Sessions across the country, plus two national-level meetings to give everyone the opportunity to voice their concerns about future water resource challenges across the Nation. The purposes of the listening sessions were twofold. First, they were designed to provide everyone an opportunity to voice concerns about pressing water resources needs, problems and opportunities that impact their lives, communities and future sustainability. Second, they were to provide everyone the opportunity to tell the Corps what they believe the Federal role should be in addressing those concerns. Corps participation was limited to note taking. Consensus on water resources issues was not sought, but many of the recommendations were included in the Corps Civil Works Strategic Plan, which is currently with the Office of Management and Budget (OMB).

The Chief of Engineers has recently revitalized the Environmental Advisory Board to provide independent analyses and expert opinions on major programs and projects that impact the environment. Additionally, Corps senior leaders are conducting a dialogue with their counterparts

within the federal community to examine ways and means of collaboratively achieving environmentally sustainable water resources solutions and execution of its military environmental restoration activities. Further, discussions are also being held with congressional interests to find and encourage legislative support for synergy between development and environmental concerns.

Relationship to Corps Missions/Activities

Why would the Corps strive to put this Principle into practice? The answer is rooted in the very fundamentals upon which our democracy is built. By treating citizens and the environment with respect today, we show consideration for future generations of humans, other species and the ecosystems upon which our continued existence depends. To do otherwise (i.e., by degrading the earth) exposes future generations to "remote tyranny." In a letter from Thomas Jefferson to James Madison, Jefferson wrote about the moral wrong of an earlier generation bankrupting or exploiting a future generation: "Earth belongs to the living... No man can by natural right oblige the lands he occupied... For if he could, he might during his own life eat up the usufruct [right to use] of the lands for several generations to come, and then the land belongs to the dead."

The Corps response to changing water resources needs over time has given rise to the diverse programs we now administer. The Corps, as a public service agency with a proud history, will continue to lead the Nation in emphasizing environmentally sustainable development. Meeting that challenge is another step in the evolution of water resources and military programs activities in response to changing societal values and needs.

Appendices

GLOSSARY

Army Environmental Strategy: In 1992 the Army's Environmental Strategy challenged Army leadership to recognize environmental stewardship as a strategic leadership function required for the wise management of resources. Stewardship was supported by the four pillars of **compliance** with environmental statutes; the **restoration** of contaminated sites; the **prevention** and elimination of pollution; and, the **conservation** and preservation of natural and cultural resources for future generations.

Army Transformation (AT): Initiated by Army Leaders in 1999, AT results from a thorough examination of needs established by the National Security Strategy (NSS) and National Military Strategy (NMS). The examination identified future trends and directions affecting the future world environment and related strategic challenges to the United States. The result was an innovative and forward-looking plan for a comprehensive Transformation that would apply to the entire Army, including Active Component and Reserve Component, and organizational and institutional structures. Transformation represents the necessary change in the nature and composition of the force itself. The transformed force that will achieve the Army Vision is an Objective Force that is responsive, deployable, agile, versatile, lethal, survivable, and sustainable—all of the required characteristics needed for the future.

BRAC: BRAC is an acronym for "Base Realignment and Closure." A BRAC site is one that is owned by, leased to, possessed by, or otherwise under the jurisdiction of Department of Defense (DOD). The BRAC program does not apply to those sites outside the U.S. jurisdiction. The goals of the BRAC program include: Close BRAC installations and transfer property as quickly, cheaply and safely as possible; and coordinate environmental cleanup and military construction projects.

CERES Principles: Ten codes of conduct established by the Coalition for Environmentally Responsible Economies, a U.S. coalition comprised of forward looking companies, investors and environmental groups committed to continuous environmental improvement and sustainable future.

Corporate Responsibility: Corporate responsibility implies mission sensibility and effectiveness often extending beyond the bounds of current circumstance and institutional boundaries but geared always to understanding the need for human dignity and the support of all life.

Cradle to Cradle: Describes the lifecycle assessment and optimization process used in (re)designing all products. Typical life cycle assessment scenarios look at a product from "cradle-to-grave." In a Cradle-to-Cradle; Lifecycle, at the end of a product's useful life, its materials become "food" for other systems.

Cumulative Impact: "The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." *NEPA CEQ Regulations - 40 C.F.R. §1508.7*

Defense Environmental Restoration Program (DERP): A program established by Congress in 1986 under Section 211 of the Superfund Amendments and Reauthorization Act (SARA) (10 U.S.C. 2701-2707 and 2810) to provide funding for cleanup of contaminated Department of Defense sites in a manner consistent with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Ecosystem: An ecosystem is the network of the interactions between organisms and their environment. An ecosystem has both living and nonliving components. Living components of an ecosytem include plants and animals. Living components in all ecosystems tend to fit into particular roles or niches such as producers, consumers, and decomposers

Environmental Advisory Board (EAB): A formal advisory group comprised of academics, subject matter experts, and industry leaders who meet with the Chief of Engineers for the purpose of making observations and recommendations on environmental issues facing the Corps, and to build partnerships, communication and cooperation with the environmental community and the public at large. Established in 1970 by then Chief of Engineers LTG Frederick J. Clarke, the EAB was recently revived by LTG Flowers, 50th Chief of Engineers, after a hiatus of approximately six years. The EAB operates under the Federal Advisory Committee Act (FACA).

Environmental Sustainability: Environmental sustainability is the dynamic under which the Earth's systems function together in a self-regulating and self-regenerating manner, maintaining a balanced interdependence while providing the essential ingredients for sustaining all life forms. It is the conceptual platform for the evolution of the Corps thought regarding the impact of its engineering endeavors upon the environment. For purposes of this doctrine, the Corps defines environmental sustainability as "a synergistic process whereby environmental and economic considerations are effectively balanced through the life cycle of project planning, design, construction, operation and maintenance to improve the quality of life for present and future generations." This definition is consistent with that developed by the Brundtland Commission, the three major elements of the PCSD, and the specific definition as it relates to water resources adopted by UNESCO/ASCE.

FUDS: Acronym for "Formerly Used Defense Sites." Numbering in the thousands, FUDS are those properties that the Department of Defense (includes former Army, Navy, Air Force, or other defense agencies' properties) once owned or used, but no longer controls. FUDS can range from privately owned farms to National Parks, and include residential areas, schools, colleges, and industrial areas. In terms of organizational control and policy, the FUDS Program within the Department of Defense (DoD) falls under the Defense Environmental Restoration Program (DERP). USACE is DoD's manager for the FUDS program. Program goals include: identification, investigation and cleanup of contamination from DoD hazardous substances; detection and disposal of unexploded ordnance; and demolition and removal of unsafe buildings and structures, located on a formerly owned Defense property, currently owned by a state, a municipality, or a Native Corporation in Alaska.

FUSRAP: Established in 1974 by the Atomic Energy Commission the Formerly Utilized Sites Remedial Action Program (FUSRAP) is a environmental remediation program comprised of 46 sites in 14 states. It addresses radiological contamination generated by activities of the Manhattan Engineer District and the Atomic Energy Commission during development of the atomic weapons in the 1940s and 50s. Its mission is to identify, investigate, and clean up or control sites where residual radioactivity exceeding current guidelines remains from the early years of the Nation's atomic energy program or other sites assigned to the Department of Energy by Congress. The 1998 Energy and Water Appropriations Bill transferred management of the FUSRAP Program to USACE. Previously, FUSRAP was managed by the U. S. Department of Energy.

Interdependence of Life and the Physical Environment: Interdependence of life and the physical environment refers to the dynamic and mutually dependent relationship between all life forms, the Earth's life support systems upon which they depend, and the products of human thought and activity.

Knowledge Base: Knowledge base is the dynamic and integrated source for our understanding of the world around us, and includes information, experience, theories, created extensions of known facts, and any information related to our ability to think, understand, and create.

Learning Organization: A "Learning Organization" is one in which people at all levels, individually and collectively, continuously increase their knowledge in order to produce results they really care about. The goal of a learning organization is to achieve high performance while enabling individual satisfaction and fulfillment. Information flow is key to differentiating between a traditional organization and a Learning Organization. In the former, information is filtered and directed through the hierarchy while in a Learning Organization, information and feedback flows simultaneously through all levels of the organization and each person, Central to a Learning Organization is a culture that foster a learning environment and encourages individual learning.

Life Cycle Project Management: A management orientation cuts across traditional functional lines to provide intensified and sustained integrated management of systems, products or projects throughout their life cycle, from initial concept through planning, execution and termination.

Listening Sessions: Conducted from June through November 2000, 14 regional forums and 2 national meetings between the Corps of Engineers and the public gave citizens the opportunity to voice their concerns about future water resource challenges across the Nation. Citizens voiced concerns about pressing water resources needs, problems and opportunities that impact their lives, communities and future sustainability, and also opined what the federal role should be in addressing those concerns. Corps participation was limited to note taking.

Mental Models - Our views and expectations, woven with our personal histories and our sense of self, that serve as the medium through which we interact with the world.

Mitigate - Acting in a manner that improves or modifies a program, project or decision for the benefit of the environment. To reduce; make less severe; alleviate or eliminate the environmental effects or impacts of individual or cumulative actions.

NEPA - The National Environmental Policy Act which perhaps provides the strongest basis for achieving sustainable solutions. NEPA establishes a national policy to "... encourage productive and enjoyable harmony between man and his environment; promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enrich the understanding of ecological systems and natural resources important to the Nation…"

Project Management Business Process (PMBP): The fundamental business process that USACE uses to deliver quality projects, products, and services, including internal support services. The PMBP applies to management of programs as well as projects, and is used at all echelons of USACE. The backbone of PMBP is the practice of drawing from the diverse resources to assemble strong multi-disciplined teams, unlimited by geography or organizational boundaries, to best meet our clients' needs. The heart of the PMBP is client-focused teamwork.

Seek Ways and Means: To make good faith efforts to continue research efforts in developing solutions to complex problems, and to secure funding and other support to continuously improve our ability to assess and mitigate impacts on the environment.

Superfund: Years ago, people were less aware of how dumping chemical wastes might affect public health and the environment. On thousands of properties where such practices were intensive or continuous, the result was uncontrolled or abandoned hazardous waste sites, such as abandoned warehouses and landfills. Citizen concern over the extent of this problem led Congress to establish the Superfund Program in 1980 to locate, investigate, and clean up the worst sites nationwide. The EPA administers the Superfund program in cooperation with individual states and tribal governments.

UXO: Unexploded Ordnance Environmental Remediation is one of five DOD Mission Areas. UXO is explosive ordnance that remains unexploded either by design, malfunction, or for any other cause and is placed in such a manner as to constitute a hazard to people, operations, or materials.

WRDA: Acronym for Water Resources Development Act. A major legislative vehicle through which the Corps receives civil works authorities and funding authorization levels.

US Army Corps
of Engineers®

Program Management Plan
For Integrating the
Environmental Operating Principles
Within HQUSACE

~ FINAL ~

November 2003

Contents

	Page
DEDICATION	3
APPROVAL	4
PREFACE & VISION	5
1.0 INTRODUCTION	7
1.1 Purpose	7
1.2 Goals	7
1.3 Objectives/Actions	8
2.0 EOP IMPLEMENTATION TEAM	14
2.1 Roles and Responsibilities	14
2.1.1 SES Champions	14
2.1.2 Team Leader	15
2.1.3 Program Delivery Team Members	15
3.0 WORK BREAKDOWN STRUCTURE	15
4.0 MILESTONES AND RESOURCE REQUIREMENTS	16
5.0 PERFORMANCE MEASUREMENT	19
6.0 COMMUNICATIONS PLAN	20
6.1 Goal	20
6.2 Objectives	20
6.3 Strategy	21
7.0 PROGRAM SUCCESS	21
APPENDICES	
A Activities and Initiatives That Contribute To and Reflect the Environmental Operating Principles	22
B Award for Leadership in Environmental Sustainability	42
C Proposed Sustainability Book Club listing	47
D Members of the HQ Program Management Team for Implementing the EOP and Doctrine	49
E Environmental Management System-Policy Memo and PMP	51

Dedication

On December 29, 2002 one of our team members was tragically taken from us in an automobile crash as he traveled to visit his mother for the holidays. Rik Wiant was an active and enthusiastic member of the team that developed the PgMP and it is with great sorrow that we dedicate this document to his memory. Rik was a tireless contributor to the PgMP, an enthusiastic supporter of sustainable development and a leader in helping to move the Corps of Engineers into the 21st century. The team will sorely miss his wit and insightful contributions, but we hope in some small way Rik is with us in the spirit of this document and in the progress of the Corps as we strive to achieve environmentally sustainable development in all our activities.

Approval

Consistent with the findings and discussions from the 2003 Senior Leaders Conference held in Portland, Oregon and with numerous comments received on the document and the Environmental Operating Principles themselves this past year, I hereby approve the recommendations contained in this Program Management Plan for Integrating the Environmental Operating Principles within USACE.

/S/

ROBERT B. FLOWERS
Lieutenant General, USA
Commanding

PREFACE & VISION

The Environmental Operating Principles and their accompanying Doctrine (Principles and Doctrine) are key elements in the U.S. Army Corps of Engineers (Corps) future success if we are to be contemporary in terms of applying new engineering and scientific knowledge and in providing the environmentally sustainable services of a premier public engineering agency in support of both the Army and the Nation. The Principles and Doctrine themselves are based partially on the following major concepts:

- A realization that human activity is significantly changing our tripartite economic, environmental and social infrastructure;
- That we can consciously choose to shape these changes so that they add net value;
- We define changes that add net value as changes that interact with the tripartite system in such a way as to cause positive responses, not only at the time of the initial action, but also in a manner that catalyzes future positive actions;
- That the highest value of the tripartite infrastructure is its ability to sustain and enhance all life;
- That the enhancement of life, given the influence of human thought on the tripartite infrastructure, will increasingly depend upon the evolution of human thought and understanding; and,
- That the nurturing and development of human thought requires a social environment embodying freedom and equity for all.

Our concept of environmental sustainability, simply speaking, seeks to add net value to the economic, environmental and social well-being elements of the tripartite infrastructure for both current and future generations. The Environmental Operating Principles, which follow, and the accompanying doctrine address these and other significant environmental, social and corporate aspects as well, stating that the Corps will:

1. Strive to achieve Environmental Sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.

2. Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of Corps programs and act accordingly in all appropriate circumstances.

3. Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.

4. Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.

5. Seek ways and means to assess and mitigate cumulative impacts to the environment; bring systems approaches to the full life cycle of our processes and work

6. Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.

7. Respect the views of individuals and groups interested in Corps activities, listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the Nation's problems that also protect and enhance the environment.

The Corps adoption of these Principles and Doctrine will continue a long tradition of positive contributions to our Nation. The success of the Principles and Doctrine will depend upon their total integration into our corporate business practices as developed by the Project Management Business Process (PMBP), including our Civil Works (CW) and Military Programs (MP) planning activities, our design and construction, our operations and maintenance, our program management, our research… in fact, any activity in which the Corps finds itself engaged, i.e., our corporate business processes. This Program Management Plan (PgMP) discusses ways to place the principles into the hands of all Corps members and implement them. It addresses where we want to go (vision), what we want to achieve (goals/objectives), how we will get there (actions) and how we intend to measure our success/progress (performance metrics). While providing for a delivery team within Headquarters to track the progress of the Environmental Operating Principle's implementation, this PgMP envisions District and MSC implementation being dependent upon each Corps business process element assuring their guidance and execution practices incorporate the intent of the Environmental Operating Principles and Doctrine

The Principles and Doctrine are meant to guide us in doing our work differently from the past and to help us achieve a **vision** that demands a broader perspective in all of our activities. We must recognize and use our increased knowledge of the environment, understand our growing impact upon it and finally, our dependence upon the essential services it provides. The Principles and Doctrine also are characteristic of the traditional purposes of the Army, that is, defense of the Nation, which today includes the protection of the natural environment and its resources. The adversarial theme of development and engineering versus the environment must give way to new partnerships among engineering and the environmental, economic and social sciences. The Principles and Doctrine demand a new view of engineering that embraces the physical and biological sciences as well as those of the social and economic disciplines. This new **vision** will reconfigure our design paradigm to assure our planning, design and project execution will take inspiration from nature and use it as a model, rather than attempting to always control it. This shift in our understanding of engineering will be huge. It will eventually lead to major changes, not only in the way we operate, but ultimately, in how we perform our authorized missions, both current and future. As our knowledge and understanding grows, every project will be integrated into a broader, comprehensive regional, national and global value system that strives to add value to the integrated economic, social and environmental infrastructure.

Our **vision** states that for our projects to be successful, they will have sound economics, solid engineering and be environmentally sustainable, all of which contribute to the well being of our nation's citizens. Additionally, successful projects will be integrated into broader comprehensive strategies, e.g., watersheds, that look beyond specific local project objectives, assuring that they also contribute to broader, regional and/or national purposes. We will change the way in which we plan, design, construct and operate our projects. Our activities will include the generation of benefits (monetary and non-monetary) from both environmental and engineering features, they will attempt to duplicate natural processes, reduce and/or eliminate waste steams, all the while providing traditional water resources and military support services communities are demanding and thus, improve the quality of our citizen's lives.

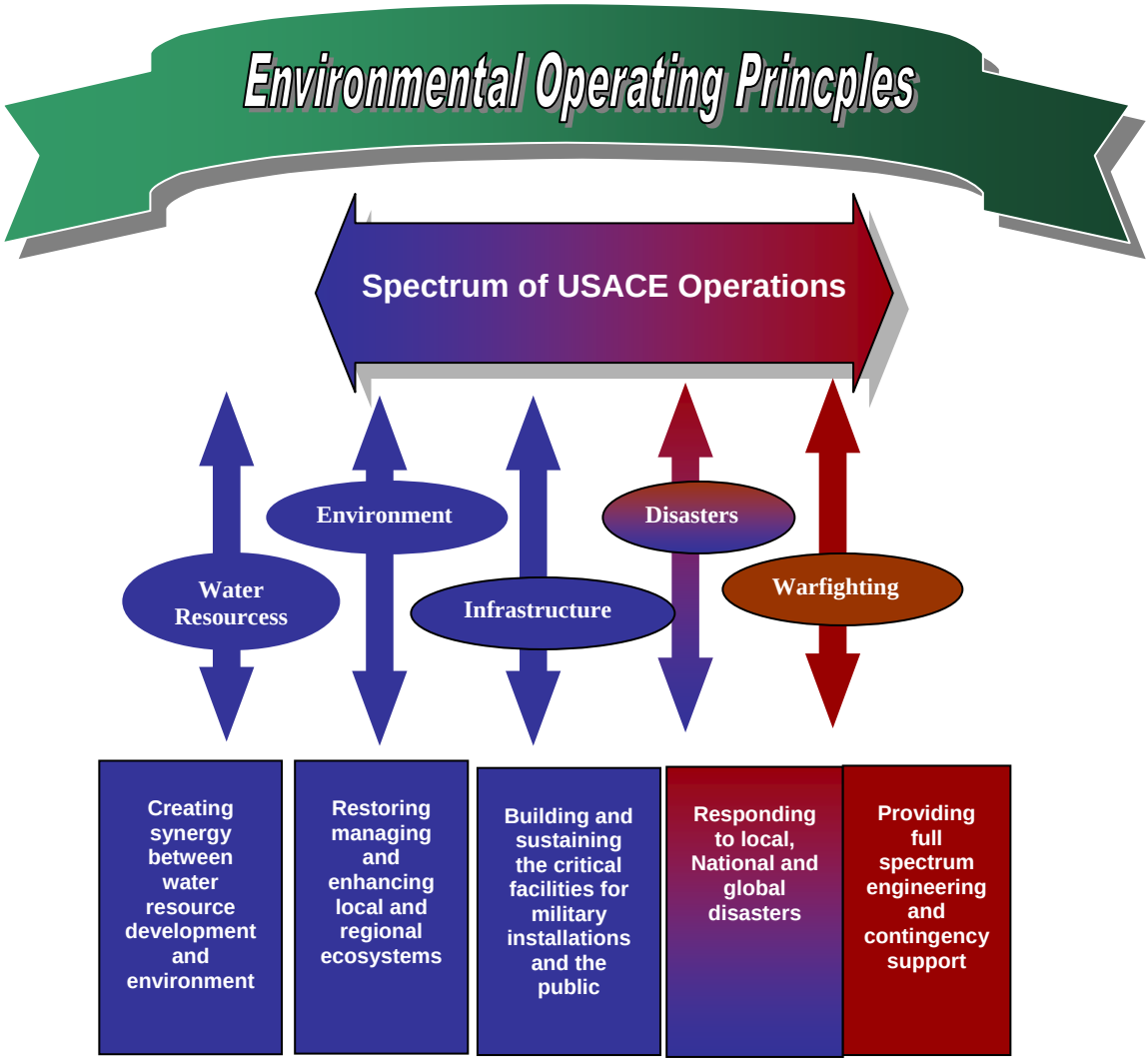

Figure 1. ***The Environmental Operating Principles and Doctrine apply to all our activities.***

1.0 INTRODUCTION

1.1 Purpose

The purpose of this PgMP is to outline a plan for the integration of the Principles and Doctrine into the Corps culture; our programs, policies, and regulations; and, ultimately into all our activities.

1.2 Goals

The primary goals of the Principles and Doctrine are to:

1.2.1 Illustrate ways in which ecological principles, environmental statutes, societal values, and sound environmental practices are to be integrated into all Corps' missions using the concept of sustainable development.

1.2.2 Provide "corporate coherence" to all Corps work, so both employees and outside interests will recognize the Corps role in, and responsibilities for, sustainable use, stewardship, and restoration of our Nation's natural resources and those of other countries in which the Corps conducts its activities.

1.2.3 Make evident the connection among water resources, protection of environmental health, and the security of our Nation. If we abandon protection and restoration of the environment, we undermine the cornerstones for our own stability and security.

1.3 Objectives/Actions

The PgMP's objectives are to identify and plan for actions that will foster the integration of the Principles and Doctrine into all our activities. The detailed actions and sub-element descriptions that follow are a logical progression of 1) examining our policies and guidance to ensure they support the integration of the Principles and Doctrine; 2) developing and incorporating an Environmental Management System to track our progress; 3) engaging the EAB and our customers to help integrate the Principles and Doctrine into our activities using the watershed approach; 4) establishing sustainability metrics and supporting R&D products; 5) educating and training our workforce; 6) encouraging the development of PgMPs for the integration of the Principles and Doctrine in all field office activities; and, 7) celebrating, rewarding and publishing our successes and lessons learned. The emphasis placed upon training is based upon a recent Engineering and Construction Division survey, results of three field workshops on the Principles and Doctrine and upon comments received from the field that training and education was needed on the concept of sustainability and the integration of the Principles and Doctrine into our business processes.

Prior to the development of the Principles and Doctrine, it must be emphasized that the Corps had recognized the importance of seeking the development of sustainable solutions and giving greater attention to the environment. In response to this recognition, a number of environmental initiatives were begun that also support the integration of the Principles and Doctrine (See Appendix A). These initiatives will be pursued simultaneously with the recommendations within this PgMP.

The following eight objectives/actions have been prioritized, action offices identified and sub-elements and/or descriptions provided for clarity. The implementation of these eight objectives/actions are the collective responsibility of the identified action offices. Their implementation, together with the initiatives listed in Appendix A, will increase the integration the Principles and Doctrine throughout the Corps:

1.3.0 Examine all our policies and guidance to assure they promote the integration of the Principles and Doctrine into all Corps corporate business processes consistent with the 2012 Objective Organization.

Action Offices: All responsible offices (reflecting the "2012 Objective Organization") within HQUSACE and applicable field offices(e.g. Regional Business Centers)

1.3.0.1 A CG memo to all responsible HQUSACE offices and applicable field offices will be developed and forwarded outlining this action.

1.3.0.2 Three months following the subject CG memo, all responsible HQUSACE offices and applicable field offices will complete a PMP for how they propose to examine and modify their guidance.

1.3.0.3 Six months following the subject CG memo, and at 6 month intervals thereafter, each responsible HQUSACE office and applicable field office will provide a status report on the progress of the necessary changes ensuring the integration of the Principles and Doctrine into their respective guidance materials.

1.3.0.4 Every six months thereafter the CG and the Issues Management Board (IMB), or other appropriate boards, will examine the status of the integration of the Principles and Doctrine into our guidance, as outlined in the responsible offices' PMPs, until they've been fully integrated.

1.3.1 Develop and implement an Environmental Management System (EMS) encompassing all Corps corporate business processes as a framework for tracking our progress in achieving environmental sustainability prescribed in the Principles and Doctrine.

Action Offices: CWCW-0 and CEMP-R or the equivalent HQ 2012 organizational element.

EMS is required by the Department of Defense and Department of Army policy and by Presidential Executive Order 13148 entitled "Greening the Government through Leadership in Environmental Management". EMS can also be viewed as the means to track the integration of the Principles and Doctrine and to nationally examine the environmental aspects and impacts of our facilities and activities.

1.3.1.1 Develop a CG's Policy Memorandum that provides the philosophy and general purposes for which the Corps is undertaking the implementation of EMS. This CG Policy memo #11 was signed and distributed on 19 May 2003. (See Appendix E)

1.3.1.2 Develop a Project Management Plan (PMP) outlining the implementation of EMS in accordance with the time frames established in EO 13148 and the provisions of ISO 14001. The EMS PMP was developed together with the CG Policy Memo #11 and the eleven recommended tasks are now being implemented. (See Appendix E)

1.3.2 Actively engage our partners and stakeholders in implementing the integration of the Principles and Doctrine into all Corps corporate business processes.

Action Offices: CECW-B, CECW-P, CEMP-R and CEMP-I or the equivalent HQ 2012 organizational element.

1.3.2.1 Continue to host "Listening Sessions" on a regional basis, e.g., at the MSC level (e.g., Regional Business Centers) to determine the nature of regional water resources and military support issues of significance. MSC programs could thus be targeted to address specific regional issues, e.g., watersheds, as appropriate and it would aid in the development of MSC and district PgMP's for the EOP (see item 1.3.6 below).

1.3.2.2 Use the Interagency Principals Group concept, established by HQ's Planning and Policy Division for the Upper Mississippi River re-study, the Great Lakes and Coastal Louisiana studies, to host a series of MSC level workshops,

initially one each in each MSC. These workshops would be designed to explore collaborative means to achieve sustainable water resources and military support solutions and could generate potential demonstration projects as ways to further promote the integration of the Principles and Doctrine.

1.3.2.3 Make greater use of existing and new partnerships for water resources and military activity stakeholders, e.g., Coastal America Partnership, American Heritage Rivers, MOUs with multiple agencies and NGOs, etc., to further promote the concepts of sustainable water resources development and military support.

1.3.3 Actively engage the CG's Environmental Advisory Board (EAB) in furthering the integration of the Principles and Doctrine into all Corps corporate business processes.

Action Offices: CECW-P and CEMP-R or the equivalent HQ 2012 organizational element.

1.3.3.1 Annually, engage the EAB in examining the progress of the integration of the Principles and Doctrine into our corporate business processes. EAB members have expressed interest in how the Corps is implementing the Principles and Doctrine as part of their volunteer role in judging the LTG Clarke Award for Leadership in Sustainability. (See Appendix B)

1.3.3.2 For every EAB meeting have MSC and district commanders suggest potential topics for consideration. The EAB could then make recommendations on these selected topics to the CG for further examination and potential inclusion into our corporate business processes.

1.3.3.3 Limit the EAB's recommendations to no more than 3-5 per topic, thus having the EAB focus on high priority recommendations on any given topic.

1.3.3.4 Provide the EAB with sufficient time for their deliberations to include presentations by both Corps and outside interests on any given topic.

1.3.3.5 Actively engage the EAB in the regional workshops discussed in the action item 1.3.2.2 above, because of the EAB's familiarity with the LTG Clarke award submissions (PgMPs) that could provide a valuable source of information and advice to MSCs and districts.

1.3.4 Develop and implement a set of environmental sustainability metrics based upon the products of our R&D programs, the products of others engaged in environmentally sustainable development and our field experience in implementing the Principles and Doctrine.

Action Offices: CERD, CECW, CEMP, CEHR, and CERE or the equivalent HQ 2012 organizational element.

1.3.4.1 Headquarters will coordinate the assembly of a laboratory/field/ stakeholder team to examine and propose an R&D program or an appropriate work unit within an existing program, whose objective is to develop a set of appropriate indicators of sustainability for all our corporate business processes.

1.3.4.2 The indicators should embrace the concepts provided in Section 5 of this PgMP, but not necessarily be limited to them. Also as part of this effort metrics and performance criteria to matrix with the indicators should be examined.

1.3.4.3 The lessons learned from the development of "SPiRiT"; the Sustainable Installation Initiative; and, numerous other non-federal sustainability activities should also be considered in this effort.

1.3.4.4 Close collaboration with MSCs, districts, and other interested water resources and military stakeholders must also be undertaken in order to develop these sustainability indicators, as these interests will have had first hand knowledge of the resource issues within their regions/communities.

1.3.4.5 Critically examine the Corps environmental and other water resources oriented and military support R&D with the objective to determine to what degree they are or will contribute to the integration of the Principles and Doctrine.

1.3.4.6 Ensure that Field Review Groups play an important role in determining the nature of new R&D efforts, appropriate methods of determining success and their support to the Principles and Doctrine.

1.3.4.7 Ensure that the actions on indicators become an integral part of any strategic R&D initiative.

1.3.5 Establish a training/education program on environmentally sustainable development and the Principles and Doctrine as it relates to all Corps corporate business processes.

Action Offices: CECW, CECC, CERD, CEMP, CEHR and CERE or the equivalent HQ 2012 organizational element.

1.3.5.1 Identify a select group of Corps and non-Corps sustainability experts and arrange a workshop to develop a curriculum for sustainability and the Principles and Doctrine training.

1.3.5.2 Develop an outline and a draft of the recommended Principles and Doctrine training curriculum, consistent with the Training Principles and with alternative formats, including; formal classroom presentations, i.e., PROSPECT; a workshop format; discussion groups; self-instruction; on-line training; and/or others, together with cost estimates for each.

1.3.5.3 Use the "lessons learned" from the training conducted as part of FORSCOM's Sustainable Installation Initiative (SII). Interview and discuss the pros and cons with facilitators and instructors from various Corps facilities, FORSCOM's staff and contractors and others as appropriate.

1.3.5.4 Identify appropriate teaching teams, with alternates, to continuously monitor and conduct the training process within the Corps (approximately every 3-5 years). The continuous monitoring would serve to educate our employees using contemporary methods, e.g., the use of "shadowing" and special details and would emphasizing the importance of integrating the Principles and Doctrine into all our activities. Additionally, efforts should be made to integrate similar

discussions on the Principles and Doctrine into existing training activities, demonstrating their integration into our corporate business processes.

1.3.5.5 To further this education a focus would be given to new techniques for on-line training, e.g., Advanced Distributed Learning (ADL), based upon the approved curriculum, to encourage greater self-instruction.

1.3.5.6 Make sustainability training and education part of every employee's IDP, based upon their individual responsibilities, and promote special details and mentoring for promising employees.

1.3.5.7 Create and publicize a "Sustainability Book Club" - a reading list of significant writings on the subject of sustainability - to solicit meaningful discussions on the topic and demonstrate how the principles of sustainability can be woven into the fabric of the Corps water resources and military support programs. (See Appendix C). This would also help to achieve our goal of becoming a learning organization.

1.3.5.8 Selected materials of the "Sustainability Book Club" would be required reading for the sustainability and Principles and Doctrine training discussed above.

1.3.5.9 The list provided in Appendix C would be placed on the Corps HQ homepage and would be updated periodically with appropriate new books and other references dealing with the concept of sustainability in collaboration with the HQ Library staff, R&D laboratories, MSCs and Districts as appropriate.

1.3.5.10 HQUSACE, divisions and districts would be encouraged to create regular, focused discussion groups, e.g., "Brown Bag Lunches, Focus Groups, etc., to include regional water resources and military support stakeholders, on how the concepts of sustainability and the Principles and Doctrine could be better integrated into their various regional activities. A CG memo to commanders would be developed and forwarded outlining this action.

1.3.6 Encourage each MSC (e.g., Regional Business Centers) and district to prepare and update (approximately every 3-5 years) a PgMP for the implementation and integration of the Principles and Doctrine into their respective business processes and program execution guidance.

Action Offices; CECW and CEMP or the equivalent HQ 2012 organizational element.

1.3.6.1 A CG memo to commanders will be developed and forwarded outlining this action.

1.3.6.2 This action will require the development of a schedule for the evaluation of and revision to MSC/District guidance to assure that the Principles and Doctrine have been integrated throughout all program business processes.

1.3.6.3 This action will also encourage the workforce to employ lessons learned from their implementation efforts, training and discussion groups and will build upon the initiative created with the LTG Clarke Award for Leadership in

Sustainability which required the development of a PgMP as the submission vehicle.

1.3.6.4 The encouragement of preparing MSC and district PgMPs for the Principles and Doctrine would further serve to integrate them with the implementation of PMBP at both the programmatic and individual project level. These PgMPs are envisioned to be executed through a matrixed organization (e.g., Regional Business Centers) supported by existing MSC and District program elements.

1.3.7 Encourage and promote business processes that contribute to the growing body of evidence on methods to achieve environmentally sustainable development and recognize, publicize and reward success stories and lessons learned related to the implemenation of the Principles and Doctrine.

Action Offices: CEPA, CECW, CEMP, CEHR, CERE and CERD or the equivalent HQ 2012 organizational element.

1.3.7.1 Encourage our field elements that, as a "learning organization", the Corps must recognize the changing aspects of its corporate business processes and actively participate in various scientific and engineering conferences to gain greater insight into new and innovative techniques to achieve sustainable solutions and to share lessons learned.

1.3.7.2 MSC's and districts should be encouraged to speak to appropriate stakeholders at presentations, field trips, professional meetings and other forums about new and innovative techniques employed in their regions.

1.3.7.3 HQUSACE will establish links to web pages and issue appropriate publications, e.g., "The Corps Environment", that address the various aspects of environmental sustainability and their relationship to the Corps corporate business processes.

1.3.7.4 Continue to refine the award for leadership in environmental sustainability, the LTG Fredrick J. Clarke Award, and promote further district and MSC competition.

1.3.7.5 Develop an annual presentation on a number of corporate business processes that highlight the integration of the Principles and Doctrine for use in briefing members of Congress, the Administration [ASA (CW), ASA (IL&E) and others] and the public in general. The recipient of the LTG Fredrick J. Clarke Award should be included in this listing as well as those projects selected from the annual Chief's Environmental Awards.

1.3.7.6 Use various newsletters, websites, and other publications/media within the Corps to further the understanding and the integration of the Principles and Doctrine.

1.3.7.7 Continue to have the CG, Directors of CW and MP, and other senior Corps managers include in their presentations to various interested parities, those projects that have demonstrated the integration of the Principles and Doctrine into their solutions.

1.3.7.8 Recognize those individuals and teams that have worked on these innovative projects at all levels of the organizations and use them as examples of how we expect all members of the Corps family to conduct themselves.

It is anticipated that the pursuit of these objectives and actions will drive the Corps toward a greater synergy between environmental sustainability and execution of our Civil Works and Military missions. These objectives will not be easily accomplished since they will involve changing the thinking of individuals and the culture of the organization on how our activities affect the natural world. Peter Senge wrote about the challenge of changing people's thinking in *The Fifth Discipline* (1999), *"We have a tendency to see the changes we need to make as being in our outer world, not in our inner world. It is challenging to think that while we redesign the manifest structures of our organizations, we must also redesign the internal structures of our 'mental models.' Our mental models are the medium through which the world and we interact. They are inextricably woven into our personal life history and sense of who we are."* HQUSACE is committed to seeing that everyone from across the Corps adjusts their mental model of our environmental responsibilities in accordance with the various actions recommended in this PgMP, while making daily project decisions and taking actions on behalf of the Corps.

2.0 EOP IMPLEMENTATION TEAM

The Program Delivery Team (PDT) for the Principles and Doctrine at Headquarters are listed in Appendix D. These individuals are the central points of contact for the Principles and Doctrine and this PgMP. As specific activities are initiated across the Major Subordinate Command (MSC) level to execute the Principles and Doctrine, additional representatives may also be appointed to serve as points of contact. The headquarters points of contact, however, will remain responsible for monitoring overall progress from throughout the Corps and elevating any deviations from this PgMP or its intent or any other issues/problems to the appropriate SES and/or HQUSACE MSC support team.

2.1 Roles and Responsibilities

2.1.1 SES Champions

The SES Champions guide and lead the PDT in the development of the PgMP for the Principles and Doctrine. They ultimately are responsible for maintaining the cross-functionality of all efforts associated with the integration of the Principles and Doctrine and for securing the necessary funding for implementing those aspects of this PgMP that require additional funds. They also must communicate the Principles and Doctrine to executive stakeholders both within and outside the Corps in the private sector, state and local governments, elsewhere within the Executive Branch and in the Legislative Branch of the federal government. They look to their respective headquarters' division representatives, who serve on the PDT, to provide the necessary oversight and keep them informed of progress and difficulties. The SES Champions also provide the link between the PDT and the Issues Management Board (IMB) in order to gain additional executive level guidance and direction from within Corps headquarters.

2.1.2 Team Leader

The Team Leader position will be rotated on an annual basis. The Team Leader leads the day-to-day activities necessary to fulfill the actions outlined in the PgMP on schedule, with quality and within budget. The Team Leader is responsible for maintaining the accuracy and relevancy of the PgMP as well as effectively communicating within the PDT and accurately reflecting the concerns of all PDT members.

2.1.3 Program Delivery Team Members.

The Principles and Doctrine PDT is a cross-functional HQ group with a passion for achieving support to the Army and the Nation in environmentally sustainable and responsible ways. They are knowledgeable of the interconnectedness of economics and the environment, and appreciate the critical place public health and the environment play in national security. Further, they play a key role in keeping the SES Champions informed of progress being made with the development of the PgMP and ultimately, its implementation. The three key PDT Members responsibilities are:

- Oversight of the execution of specific actions found within this PgMP and in Appendix A as they relate to the PDT member's responsibilities.

- Leadership and support to the field in fulfilling the intent of activities in this PgMP.

- Participation in the development and integration of metrics designed to measure progress in applying the Principles and Doctrine into all of the Corps mission areas, both CW and MP.

3.0 WORK BREAKDOWN STRUCTURE

The PgMP Team Leader will personally maintain the general Work Breakdown Structure (WBS), illustrated below:

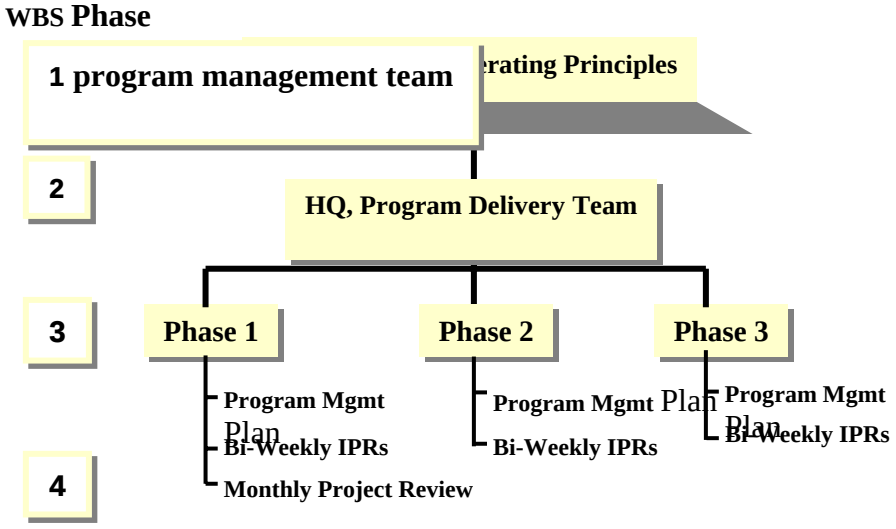

Figure 2. The Work Breakdown Structure for the HQ, PDT preparing the PgMP for the Environmental Operating Principles.

4.0 MILESTONES AND RESOURCE REQUIREMENTS

A summarized view of the activities outlined within the PgMP for the Principles and Doctrine is described below. Detailed schedules for each specific activity will be developed and maintained by the proponent for that specific activity. Proponents for specific activities within this PgMP will be members of the PgMP Team. Updates to this integrated, macro-schedule and to the individual, specific task schedules will be the responsibility of the Team Leader and the individual activity proponent, respectively.

Table III
Estimated Milestones and Resource Requirements

Activities	***Schedule***	***Costs***
Phase I Development and coordination of EOP and doctrine.	April 2001 until January 2002 – Publicly released on 26 March 2002	N/A
Phase II ***1.3.0 Agency-wide policy examination for integrating EOP and Doctrine into our business processes*** 1.3.0.1-Preparation of CG memo to HQs divisions, etc., for each to examine their guidance to determine what needs to be done to fully incorporate the EOP and doctrine. 1.3.0.2-All HQ divisions and appropriate field offices finalize PMP. 1.3.0.3-After 6 mos. and every 6 mos. after each HQ division and appropriate field offices will prepare status reports on progress of EOP integration. 1.3.0.4-CG and IMB six month status of PMPs within HQs.	Within 30 days of PgMP approval Within 90 days of PgMP approval Within 180 days of PgMP approval Within 180 days of PgMP approval	N/A N/A N/A N/A
1.3.1 Development of EMS 1.3.1.1-Issue CG's Policy Memo 1.3.1.2-Develop a detailed PMP for implementation of EMS.	Memo issued 19 May 2003 PMP issued with memo – implementation progressing	N/A N/A
1.3.2 Discussions with appropriate water resources and military stakeholder. 1.3.2.1-Conduct regional "listening sessions" to determine significant issues. 1.3.2.2-Host collaborative (fed & non-fed) environmental sustainability workshops; initially 1 per MSC. 1.3.2.3-Utilize existing partnerships and MOU's to a greater extent in determining potential areas of collaboration.	Within 120 days of PgMP approval Within 120 days of PgMP approval Within 120 days of PgMP approval	$150,000 $150,000 N/A

Table III (cont.)
Estimated Milestones and Resource Requirements

Activities	Schedule	Costs
1.3.3 Greater Use of EAB		
1.3.3.1-Annual meetings to examine incorporation of EOP & Doctrine into business processes.	Within 60 days of PgMP approval	N/A
1.3.3.2-Routine MSC & district input into EAB agendas.	Within 60 days of PgMP approval	N/A
1.3.3.3&.4-Provide sufficient time for meetings and limit EAB recommendations to their top 3-4	Within 60 days of PgMP approval	N/A
1.3.3.5-Engage EAB in regional meetings discussed in item 1.3.2	Within 60 days of PgMP approval	N/A
1.3.4 Develop & Implement a set of sustainable metrics and supporting R&D programs.		
1.3.4.1-.4-Establish a HQ/Field team to develop a research program to establish and test appropriate metrics	Establish within 60 days of PgMP approval with final recommendations in 360 days	TBD
1.3.4.5-critically examine our supporting R&D efforts to determine their support to the EOP and doctrine.	Within 120 days of PgMP approval	TBD
1.3.4.6- Utilize field R&D review groups to their fullest extent in this examination.	Critical element of item 1.3.4.1	TBD
1.3.4.7- HQUSACE will highlight web pages that address various aspects of environmental sustainability.	Within 90 days and continuing thereafter following PgMP approval	TBD
1.3.5 Sustainability Training/Education		
1.3.5.1-Identify working group and host workshop (3-4 days)	Within 90 days of PgMP approval	$10,000
1.3.5.2-Develop curriculum and alternative formats with cost estimates (3-4 mtgs.)	Within 210 days of PgMP approval	$50,000*
1.3.5.3& 4-Use lessons learned from SII and facilitators and identify teaching team	Integral part of item 1.3.0.2	N/A**
1.3.5.5&6-Create CD for self-instruction	Within 360 days of PgMP approval	TBD
1.3.5.7&8-Sustainability literature (Book Club) made part of the training curriculum.	Within 90 days of PgMP approval, critical part of workshop considerations	N/A
1.3.5.9-Provide listing on HQUSAE home page	Within 30 days of PgMP approval	N/A
1.3.5.10-Prepare CG memo to commanders encouraging sustainability discussions.	Within 30 days of PgMP approval.	N/A

Table III (cont.)
Estimated Milestones and Resource Requirements

Activities	*Schedule*	*Cost*
1.3.6 Encourage PgMPs for EOP implementation at MSCs and Districts		`
1.3.6.1-3-Prepare CG Memo to Cmdrs outlining requirements	Within 30 days of PgMP approval	N/A
1.3.7 Examination, publication and recognition of environmental efforts and incorporation of EOP and Doctrine		
1.3.7.1-.3-HQUSACE will highlight field activities that demonstrate the EOP and doctrine on its homepage.	Within 360 days of PgMP approval	N/A
1.3.7.4-Continually refine the LTG Clarke annual award in recognition of the field's implementation of their PgMPs.	A continuing annual effort following the first award scheduled for Feb. '02	N/A
1.3.7.5& .6-Annually highlight a number of CW and MP activities that exemplify the integration of the EOP and doctrine to public, Congress and Administration.	A continuing annual effort at HQ	N/A
1.3.7.7-Use the various Corps newsletters, etc. to publicize the EOP and doctrine integration.	A continuing annual effort at HQ and the field.	N/A
1.3.7.8-Recognize individuals and teams that have demonstrated success in integrating the EOP and doctrine.	A continuing annual effort at HQ	N/A

*** NOTE**: These represent the estimated cost to host a series of course development meetings. They do not include the cost of Huntsville developing the curriculum, which is estimated to cost between $200-250K.

****NOTE**: N/A represents HQ and MSC staff time and efforts, estimates of which have not been prepared.

The detailed schedules for each specific activity will be developed and maintained by the activity proponent, who is either a member of the PgMP Team or an employee who works in the same HQ division as the PgMP team member. Updates to this integrated, macro schedule and to the individual, specific task schedules will be the responsibility of the Team Leader and the individual activity proponent, respectively.

Although the Principles and Doctrine were released in March 2002, numerous environmental activities and initiatives supporting the concepts and ideas of the Principles and Doctrine preceded their release. A listing of these activities and initiatives by the specific Civil Works Division and Military Programs Division in which they are being conducted can be found in Appendix A. The appropriate CW or MP office (or HQ 2012 equivalent office) will monitor these efforts, for they all support the integration of the Principles and Doctrine and progress will be tracked by the PgMP PDT.

5.0 PERFORMANCE MEASUREMENT

Unless we measure our performance against the Principles and Doctrine, we will never succeed in fulfilling their purpose. Metrics that relate to our mission essential tasks must be developed based on the Principles and Doctrine. To this end, as outlined above in Action item 1.3.4, we propose creating an R&D/MSC/District/Stakeholder working group to begin to develop a set of metrics. These metrics will be used in established reporting mechanisms, such as Project Review Boards, Command Management Reviews, etc. Further, as information relevant to these metrics is collected, analyzed and reported it will provide valuable data for the development of Performance Based Budgeting (PPB). Decision makers, at all levels, will be responsible for examining the effectivness of the metrics, providing feedback, and finding ways to improve our environmental performance.

Figure 3 below conceptualizes the links among the various elements of the Principles and Doctrine and the interactions that must be considered in their development.

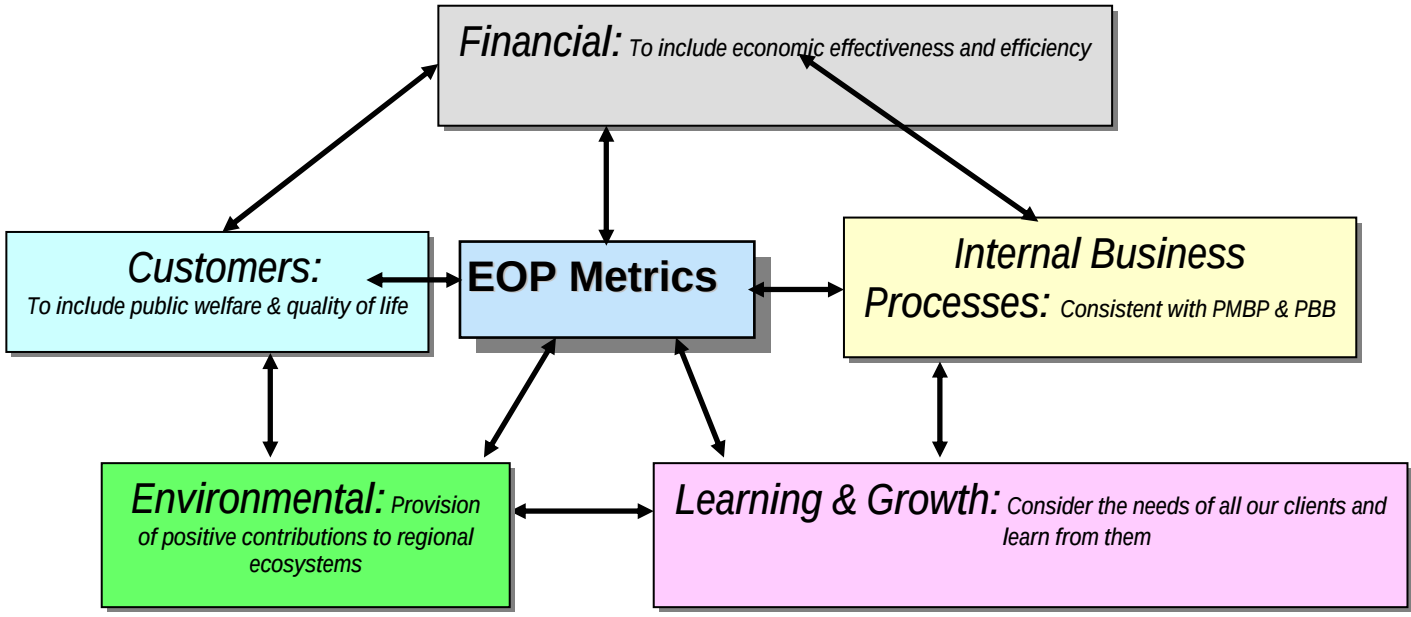

Figure 3. ***Conceptual Linkages Among Critical Components of the EOP and Doctine for Consideration in Developing Sustainability Metrics***

The metrics developed to evaluate Corps performance against the Environmental Operating Principles and Doctrine must:

- reflect balanced scorecard components (i.e., financial, customer, environmental, internal business processes and learning/growth measurements);
- provide information to show the present environmental performance of the Corps from the division and district levels:
- provide information into the various processes that will guide environmental performance improvements;
- show trends in corporate performance over time as the metrics are tracked;
- consider all aspects of our missions, i.e., planning, design, construction, operations, research and development, etc.;

- provide quantitative inputs for us in forecasting models; and,
- link directly to the Principles and Doctrine themselves.

Our success will be evidenced by the effective accomplishment of the Corps mission in a more environmentally responsible and sustainable manner while at the same time fostering the economic development upon which our Nation depends.

6.0 COMMUNICATIONS PLAN

6.1 Goal

Our goal is to ensure that all Corps members and Corps stakeholders become informed about the Principles and Doctrine and that all Corps PDTs incorporate them into their project work. All Corps PDTs should be actively engaged in listening and discussing ways in which the Principles and Doctrine influence their day-to-day activities of planning, design, construction and operation of Corps projects, striving to integrate them into these activities.

One of the seven principles is to "Respect the views of individuals and groups interested in Corps activities, listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the Nation's problems that also protect and enhance the environment." Consequently, a goal of this element of the PgMP is to foster a continuing dialogue about the Principles and Doctrine, respecting the diverse viewpoints of our stakeholders to achieve environmentally sustainable water resource and military solutions.

6.2 Objectives

- Develop central Corps messages about the Principles and Doctrine and their purpose.
- Integrate principle-based messages through multiple forums to both internal and external audiences; e.g. internet, speeches, articles, editorial boards, pocket card, town hall meetings, public planning charrettes, etc.
- Foster learning by USACE members through dialogues about the Principles and Doctrine.
- Build relations around the Principles and Doctrine with Corps stakeholders.
- Leverage Public Affairs Office staff and processes to inform leaders, employees and stakeholders on initiatives and actions associated with the Principles and Doctrine.
- Encourage HQUSACE, MSC, Districts, Labs, and Centers of Expertise to undertake information and listening session activities, e.g., Town Hall meetings, on the Principles and Doctrine.
- Communicate the tools that will enable field members to ensure that the Principles and Doctrine become part of all Corps planning, design, construction and operational (including demolition and recycling) activities.
- Communicate the Principles and Doctrine's metrics.
- Listen to Corps members and critics and collect/communicate lessons learned regarding the application of the Principles and Doctrine to Corps projects and activities.

6.3 Communication Strategy.

The communication strategy for the Principles and Doctrine is based on first promoting understanding and two-way communication and then achieving acceptance, resulting in cultural and behavioral change, both within the Corps and among our stakeholders.

The Principles and Doctrine reaffirm the National Environmental Policy Act, the Army Environmental Strategy into the 21st Century, the Army Environmental Campaign Plan and Operational Directive Principles, and numerous other environmental statutes and commitments, under which the Corps currently operates. They also reflect a growing body of scientific information about our relationship with and our responsibilities for the natural environment. We are focusing our communication efforts on informing the Corps family and our partners that we will provide our traditional services, but in more environmentally focused and sustainable manners, demonstrating a greater respect and knowledge of our dependence upon natural systems.

Our first priority is to promote an understanding within the Corps family as to what we are doing, why we are doing it and how the process will work. We want a two-way dialogue that focuses on how we can integrate the Principles and Doctrine into our programs and projects early in the planning process. This dialogue will produce the desired cultural, behavioral and institutional changes.

Consistent messages help build effective relationships and ensure that our environmental operating principles are integrated into the Corps strategic vision.

So far we have identified and prioritized potential audiences, looked at potential communication products, created an implementation schedule and begun looking at implementation costs for this communication plan.

7.0 PROGRAM SUCCESS

The successful indoctrination and implementation of the Principles and Doctrine will be measured against a set of metrics developed for the individual principles and the following:

- The Principles and Doctrine are increasingly integrated into Corps practices and culture.
- The Corps' culture increasingly reflects the philosophy of the Principles and Doctrine.
- Clients, sponsors and other stakeholders increasingly recognize the Corps for its excellent environmental stewardship activities.
- Improvements in the environmental effects of our projects are observed and replicated, both domestically and internationally.
- Increasingly environmental restoration and sustainability are incorporated into the planning and implementation of all Corps projects.

~ End ~

Appendix A

Actions and Initiatives That Reflect the EOP
By
Civil Works Divisions, Military Programs and the Research and Development Directorates

Policy and Planning Initiatives That Support the EOP

17 June 2003

1. Interagency Principals Group (All Principles)

    a. Developed out of the relationships formed under the Upper Mississippi River and Illinois Waterway Navigation Re-Study (UMRIWN).
    b. Includes the USDA/NRCS, the DOI/USFWS, the DOC/NMFS and the EPA
    c. The Principals Group met for over a year discussing means to collaboratively develop and implement environmentally sustainable water resources projects, but has recently focused their attention only upon the UMRIWN study.
    d. The Principals Group developed a draft agenda for a proposed workshop to discuss means to collaboratively develop and implement environmentally sustainable water resources projects.
    e. The intent was to host a workshop in each of the Corps 8 Divisions with representatives from each of the representative agencies in the Principals Group and then to conduct subsequent workshops with interested states, local governments and NGOs on ways to collaboratively develop and implement environmentally sustainable water resources projects. **This effort should be reinitiated**.

2. Sustainable Water Resources Roundtable (SWRRT) (All Principles)

    a. Grew out of activities and recommendations of President Clinton's Committee on Sustainable Development (PCSD), the Interagency Working Group on Sustainable Development Indicators and the experience of the Sustainable Forests, the Sustainable Rangelands and the Sustainable Minerals Roundtables.
    b. Each of these roundtables focused on developing criteria and indicators of sustainability to aid in reporting and decision-making using a collaborative multi-stakeholder approach.
    c. The SWRRT organizers completed their first conference with interested federal and state agencies 11-12 December 2002 and will be conducting briefings within various federal agencies to solicit additional participation and financial support to conduct the activities of the SWRRT.
    d. The Corps is currently a minor player in this initiative, but **should** be a major participant in support of the EOP and Doctrine.

3. Engineering Circular on Environmental Sustainability (Principle #1)

    a. In an effort to provide more timely and comprehensive water resources solutions the MSC Planning and Policy Chiefs endorsed the concept of striving to contribute to environmental sustainability.
    b. Subsequently, based upon their and the D/CW's endorsement, a draft EC was developed to provide guidance on how our projects could contribute to environmental sustainability within the planning framework established by the P&G.
    c. Conceptually, the idea is to merge the National Economic Development (NED) and National Ecosystem Restoration (NER) accounts such that in the formulation of new projects we seek a greater balance between the economic and ecosystem benefits attributed to that project.
    d. The EC was finalized and distributed on 1 May 2003 and included comments received from HQ and the field .

4. IWR Policy Studies Program (Principles 1,2 &3)

a. Planning and Policy Division oversees the IWR Policy Studies Program and as such, provides input into the nature of IWR's investigations. Two investigations, begun last year, are of significance regarding the EOP.

b. *"Improving Environmental Benefits Analysis"* – This investigation is examining the various methods presently being used to evaluate the environmental impacts of traditional activities and the benefits of our ecosystem restoration activities.
   i. The emphasis upon ecosystem restoration within the context of water resources has provided new challenges for project justification and evaluation.
   ii. The report will examine these challenges and recommend solutions to our traditional means of evaluation and justification.
   iii. A final draft, November '01, has been produced (together with a protocol, 14 March '03, for assembling models to examine environmental benefits.

b. "*Sustainable Corps Projects – Practical Measures to Improve the Corps Value"* – This investigation is examining means whereby Corps projects can contribute to achieving environmental sustainability, using practical examples and experiences from various water resources activities around the world. Currently on hold.

5. Planning and Policy Training (All Principles)

a. Based on the need to continuously train our field planners in contemporary methods, procedures and policies, the development of a Core Planning Curriculum has been successfully undertaken.
b. Included in the curriculum is a course on "Environmental Considerations in Planning" which includes an introductory section on environmental sustainability and the EOP.
c. Additionally, these same two topics are to be discussed in the introductions to the other courses that are part of the overall curriculum.
d. In a partnership with the University Council on Water Resources (UCOWR) the Corps has developed a Masters in Water Resources Planning and Management that could also be used as a means to emphasize the importance of seeking environmental sustainability.
e. Planning Fellowship Program - an updated and streamlined version of the former "Planning Associates Program**"** The new program will involve about 13 weeks of instruction and field visits, delivered in five blocks of time over about seven months. The first class of about 7-8 students started in January 2003 and were given a presentation on the EOP and Doctrine in May '03 .

6. National Research Council's (NRC) Investigation into "Assessing and Valuing the Services of Aquatic and Related Terrestrial Ecosystems" (Principles 1&2)

a. The NRC's Water Science and Technology Board is undertaking a study of methods for assessing services and the associated economic values of aquatic and related terrestrial ecosystems.
b. The study will focus on identifying and assessing existing methods for defining and assigning economic values to these ecosystems as well as examining the errors and biases characteristic of these methods and seeking to improve them in order to improve decision making with regard to the environment.
c. The Corps is helping to sponsor this investigation.

7. Chain of Command Training on EOP (All Principles)

   a. Although this training is currently being conducted via the internet, as a site has been created on the Corps HQ website, it's important to keep the EOP and Doctrine in everyone's view.
   b. We must ensure that the message of the EOP doesn't change as it passes from Headquarters, to Division to District.
   c. The result of three EOP workshops, hosted by HQ's Engineering and Construction Division, has emphasized the need for additional training opportunities regarding the EOP and Doctrine.

8. USFWS Detailee to Corps Headquarters (Principle7)

   a. One of the tenets of achieving environmental sustainability is collaboration.
   b. In a effort to improve relationships with one of the federal stakeholders regarding water resources activities, the Planning and Policy Division is supporting a USFWS employee for sixty days to aid in the management and development of the plans for the Upper Mississippi River and Illinois Waterway Navigation Re-Study. Mr. Jon Kauffield arrived on 1 May '02 and spent 60 days within the Planning and Policy Division working on this and other issues pertaining to environmental sustainability, including item 1, above.
   c. Similar activities should be sought among other federal agencies.

9. Watershed Perspective Policy Guidance Letter #61 (Principles 1&3)

   a. Corps watershed policy, issued on 27 January 1999, integrates the watershed perspective into opportunities within, and among, Civil Works elements and actively solicits participation from Federal, tribal, state, and local agencies, organizations, and the local community to ensure that all interests are considered in the formulation and implementation of water resources actions.

   b. The Corps Civil Works watershed perspective includes:

      - use of water resources in a manner that is sustainable, taking into account environmental protection, economic development, and social well-being.
      - coordinated planning and management of water and related land resources by the responsible Federal, tribal, state or local governments;
      - interagency cooperation, including cost-shared collaboration on initiatives that incorporate local, tribal, regional, and national water resources management goals;
      - consideration of adaptive management of resources in the watershed;
      - Leveraging resources and integrating programs and activities within and among Civil Works programs, and with other Federal, tribal state and non-governmental organizations, to improve consistency and cost effectiveness; and, identification of future water resource use demands, including local, tribal, regional, and national goals.

10. Sustainable Rivers Initiative and the MOU With the Nature Conservancy . (Principles 1,2 &3)

    a. In December 2001 the Corps and the Nature Conservancy entered into a MOU to facilitate effective and efficient management of important biological resources within the context of the Corps CW and regulatory missions.
    b. In March 2002 the Director of CW, MG Griffin informed MSCs of the opportunity that the MOU provided in implementing the Environmental Operating Principles (EOP) and encouraged the field to engage the Nature Conservancy in a dialogue to identify opportunities that would meet the objectives of the MOU and the EOP.
    c. In July of 2002, the Sustainable Rivers Initiative was announced whereby the Corps and the Nature Conservancy would work together to improve dam operations, helping to restore and protect the health of rivers and surrounding natural areas while continuing to provide services such as flood control and power generation at 13 candidate locations in nine states.

11. Urban Rivers Restoration – MOU with EPA. (Principles 1,2 &3)

    a. On 2 July '02 EPA and the Corps entered into the subject MOU, committing to an urban stream restoration partnership. Specifically the two agencies will select and begin work on eight (8) urban river restoration pilot projects during an 12 month period beginning with the signing date.
    b. To date 4 pilot studies have been identified, specifically Tres Rios, AZ; Elizabeth River, VA; Blackstone River, RI & MA; and, Anacostia River, DC & MD. The identification of the 4 additional pilots will focus on activities that address water quality, human and environmental health, habitat restoration and preservation and public use

12. Wetland Restoration – MOU with Ducks Unlimited (DU). (Principles 1,2 &3)

    a. On 22 July '02 DU and the Corps entered into the subject MOU, which provides a foundation for the collaborative activities associated with the protection, restoration and/or management of selected wetlands and associated uplands of mutual interest to both entities.

Engineering and Construction Division Activities
Supporting the
Environmental Operating Principles
28 August 2003

1. Environmental Operating Principles Commanders' Policy Memo (all Principles)

a. The Commanders' Policy Memo will make the Principles an official, easily referenced document.
b. LTG Flowers has only issued 11 Policy Memos to date.
   i. This action is for corporate USACE.
   ii. Draft document is circulating for comment.

2. Engineering and Construction Bulletin

a. Bulletin contains a directive to emphasize the Principles, not take a business as usual approach.
   b. Bulletin published on 30 October '02

3. E&C Environmental Operating Principles Network (all Principles)

a. A network of 80 E&C personnel has been identified. This network extends throughout the Corps.
b. Network members are information transfer conduits and EOP ambassadors.
c. CECW-E personnel meet on a regular basis with individual network personnel.

4. Economic and Environmental Conference: EOP Workshop (Principle #7)

a. E&C and Planning and Policy conducted a joint workshop to obtain direct field input re: their needs to better implement the EOPs.
b. The conference was held in July '02, with proceeding being used to develop the EC on Environmental Sustainability (See also item 3 in Policy and Planning Initiatives that Support the EOP, page 25).

5. E&C Survey re: Improving Environmental Operating Principles Integration in E&C (All Principles)

a. People working in Engineering and Construction throughout the Corps provided recommendations on improving implementation of the EOP as well as identifying success stories via a CECW-E sponsored web-based survey. Other organizational elements also responded as well.
b. The survey was conducted and results analyzed in FY02-03.
   i. Over 400/800 responses were received.
   ii. Four follow up regional workshops are being held based on the responses to the survey.

6. E&C Workshops on Integrating EOP into Engineering & Construction (All Principles)

a. A series of three regional workshops were held in FY03 to develop action plans to integrate EOP into E&C corps-wide.

b. A fourth workshop is being held to form corps-wide PDT teams responsible for each of these action items.
c. The workshop results have been disseminated throughout the Corps and incorporated into the HQ PgMP.
d. The results of the workshops were presented at the USACE Environmental-Natural Resource Conference in FY03
d. Many of the action items are presently being developed for implementation.

7. EC News (Principle #6)

a. An article entitled "E&C Embraces USACE Environmental Operating Principles is in the June/July edition of this in-house newsletter.
b. The August/September edition focused on Sustainable Design and Development
c. Articles on E&C abandoned mine restoration activities, sustainable design, the EOP Workshops, and ITRC partnership have appeared in the "Corps Environment" publication in FY03.

8. Regional USACE Environmental Operating Principles Seminars Proposal (Principle #6)

The purposes of the proposed corporate seminars are to:
a. Promote interdisciplinary information exchange.
b. Promote cross-functional teamwork.
c. Identify lessons learned.
d. Provide feedback on guidance and reforms needed to fully integrate the EOPs
e. FY 03 UFR submitted

9. Sustainable Project Rating Tool (SPiRiT) for Military Facilities (Principle #1)

a. An easy to use tool allowing building delivery teams to score various design features, defining the sustainability of a building over its life cycle.
b. Army and USACE policies require all Army projects to be scored against SPiRiT.
c. SPiRiT is in the implementation phase.

10. Sustainable Project Rating Tool (SPiRiT) for Civil Works Facilities (Principle #1)

a. Field organizations are being asked to review and test SPiRiT on relevant Civil Works facilities.
b. Our goal is to field SPiRiT for Civil Works facilities in FY 03.

11. Civil Design/Planning Prospect Course, #218 (Principle #6)

a. Bob Bank and Skip Fach, course proponents, inserted an EOP unit in the course.
b. The course was conducted 24-28 June 2002, and the EOP unit was well received and stimulated group discussion.
c. The EOP unit is now a permanent part of the course.

12. New E&C PROSPECT Training Courses for EOP (Principle #6)

a. A new PROSPECT course, Ecology for Engineers was held in FY02.
b. A new PROSPECT course, EOP Technologies and Techniques is presently being developed for the E&C community.

13. Regional Sediment Management (All Principles)

a. A strategic R&D program to develop tools for managing sediment on a systems-wide basis.
b. Demonstration program relating to how we implement Regional Sediment Management are underway in seven different parts of the country. Mobile District's has been in place three years.

14. System-wide Modeling, Assessment and Restoration Technologies (SMART) (All Principles)
(See also Environmental Sciences R&D Activities That Support the EOP, item #1)

a. Another strategic R&D program to:
(1) Provide the Corps with needed technical capabilities to address environmental missions and responsibilities in water resources development at project, watershed, and basin scales; and,
(2) Provide an integrating function across R&D programs and disciplines to merge science and engineering in the development of system-wide modeling, assessment, and restoration technologies.
b. Technology targeted to: (1) MSCs, districts and partners, (2) multiple disciplines, (3) different levels of experience and responsibilities.

15. Restoration of Abandoned Mine Lands (Principle #3)

a. Efforts go beyond remediation, extend to restoring environment.
b. Program development includes Corps, industry and environmental group collaboration.
c. Fourth Corps-sponsored Abandoned Mine Restoration Workshop held in FY03.
d. CECW-E POC met with stakeholders at several projects and explained Corps program.
e. Publication of summary description of all Corps mine restoration projects. Publication provided to Corps and non-Corps abandoned mine restoration advocates.
f. CECW-E POC member of Presidents Council For Environmental Quality technical review team for Tar Creek mine restoration project review.

16. FY03 Environmental and Natural Resources Conference (Principle #6)

a. The EOPs were the theme of the Conference.
b. Approved conference included: (1) remediation, (2) restoration, (3) natural resources management, and (4) environmental compliance.
c. Planning initiated on 9 April 02 for May 03 Conference. After Action Report prepared in June 03.
d. Next conference planned for spring of 2005.

17. Presentations to Outside Groups (Principle #7)

a. E&C gave presentation and sat on panel at the National Convention of the American Ecological Engineering Association.
b. E&C was an invited panel member at the National Conference of State Abandoned Mine Restoration Agencies.
c. CECW-E POC gave presentation on Corps abandoned mine activities to the annual meeting of the Federal Mining Dialog.

18. Publication of Environmental Design & Construction Success Stories (Principle #6)

a. Corps-wide E&C Environmental Team members provided with copies of Corps-wide environmental design & construction success stories and points of contact.

19. EOP Integration and Evaluation Framework (All Principles)

Operations Division Activities
Supporting the
Environmental Operating Principles
17 June 2003

1. Stewardship Support Program (all Principles)

    a. Corps advisory team (HQ, MSC, FOA, Projects, ERDC) to provide broad support to Environment-Stewardship business program
    b. Team to assist in:
        - identification of national program needs
        - development of new national program activities
        - strategic program planning
        - recommendation of national program funding
    c. Team to assist in assuring corporate level thinking has been employed in pursuing natural resources management activities.
    d. Team will assist in working issues and opportunities that cross functional area stovepipes.
    e. Outputs should result in greater fiscal efficiency and focus on high priority regional and national issues and concerns.

2. Ecosystem Partnerships (all Principles)

    a. District and project initiatives underway to become involved and participate in collaborative ecosystem efforts - ecosystem partnerships
    b. Multiple agencies, organization and interest group included
    c. Example: Lake Shelbyville Development Association and Upper Kaskaskia Ecosystem Partnership.
    d. Corps working and contributing in larger efforts to contribute to sustainability of ecosystems while accomplishing Corps missions

3. Natural Resources Stakeholders Listening Session (Principles 1,3, 5, 6 and 7)

    a. Meeting planned for Fall FY 02
    b. Nationwide representation (approx. 50) from various natural resources agencies and interest groups
    c. Objectives:
        - Foster an understanding among stakeholders and public of the Corps role in natural resources stewardship
        - Listen to stakeholder concerns and thoughts with the purpose of discovering ideas for improving the stewardship of natural resources on Corps lands and waters and within watershed contexts
        - Obtain input to further develop Strategic Planning for the Corps Natural Resources Stewardship business program of the future.
        - Document stakeholder views.
    d. Information gathered will be used to guide development of the Stewardship Strategic Plan

2. Natural Resources Stewardship Performance Measures (Principles1, 2, 4 and 5)

    a . Development and implement since FY 1996
    c. Measures to assist Corps in contributing to environmental sustainability
    c. Two measures currently implemented
        - Mitigation accomplished on Corps administered lands
        - Corps participation in the recovery of federally listed species

d. Additional measure being developed to address general ecological health of project lands (for implementation in FY 04)

5. Ecosystem Management and Restoration Research Program (EMRRP) (Principles 1,3, 5 and 6)

a. Purpose:
- Provide national state-of-the-science methods to predict and quantify environmental impacts of the Corps projects
- Provide users (Corps MSC and District, other Federal, state and local concerns) with tools and techniques for new/ improved, ecosystem-based restoration and management efforts on Corps projects in support of watershed initiatives

c. Results in:
- Improved/less-expensive techniques to restore and manage Corps projects and lands.
- Guidance for project operation modifications to reduce impacts
- Improved tools for predicting potential impacts from Corps projects

6. Operations Managers Training (PROSPECT) (Principles 2, 3 and 6)

a. Includes instruction on the proactive consideration of environmental consequence of Corps projects and activities.
b. Incorporates the Environmental Operating Principles and Doctrine
c. Stresses need for public input in conducting natural resources management activities and seeking balance between operations activities and natural systems
d. Provides basic guidance on concepts of management within ecosystem and environmental sustainability frameworks.

7. Operations and Maintenance Business Information Link (OMBIL) (Principles 2, 3, 5 and 6)

a. OMBIL is an executive information system, containing data regarding the Corps Operations and Maintenance (O&M) business programs

b. Purpose:
- provide data and information requirements for program and project management at all levels of the O&M community.
- increase effectiveness and efficiency in data management by using and linking present data management systems, standardizing terms and data elements, and providing Corps-wide data distribution and access - to the same data.

8. FY 03 Environmental Development Conference (Principle #6)

a. The Environmental Operating Principles was the theme.
b. Approved conference includes: (1) remediation, (2) restoration, (3) natural resources management, and (4) environmental compliance.
c. Planning initiated on 9 April 02 and the conference held from April 29-1May ’03, at which the CG reaffirmed his support of the EOP and Doctrine.

9. Partnerships (Principles # 1,3,5, and 7)

a. Participate with wide assortment of environmental organizations in furthering stewardship efforts on Corps projects and within watersheds.

b. Examples: with Ducks Unlimited in wetland creation, restoration and management, for waterfowl and other purposes and other environmental purposes; with The Nature Conservancy to determine if releases from the Dams in watersheds with superior biodiversity can be modified to more closely mimic the pre-dam flow conditions.

10. Environmental Education and Interpretation (Principle 6)

a. Over 450 projects involved in continuing and year-round efforts.
b. School programs, visitor centers displays and programs, campfire and other special programs, media events, and publications highlight stewardship messages.
c. Development of a Stewardship brochure, "Lands and Waters" is underway, that describes efforts underway on Corps lands.
d. Young Environmental Stewards (Y.E.S).
    a. Under Development
    b. Young Environmental Stewards
        1. Lewis & Clark Expedition – Environmental Aspects
        2. Resource Activity Guides
        3. National Environmental Education Training Foundation
        4. Project Wild.
        5. Distribution to Schools Nationwide

11. Environmental Compliance (Principle #4)

a. Requires compliance assessments of facilities
b. Network of Environmental Compliance Coordinators at MSCs, Districts & projects
c. Compliance integrated into day-to-day operations
d. Accountability for corrective actions with Operations Managers

12. Environmental Management System (All Principles)

a. Responds to requirements in E.O. 13148 entitled 'Greening the Government through Leadership in Environmental Management'
b. Provides a programmatic approach to managing environmental impacts
c. Integration of environmental management and business functions or mission
d. DoD & Army policy issued, Corps policy guidance and direction to the field issued on 19 June '03 together with a PMP for EMS implementation

13. Regulatory Program (all Principles)

a. Program is executed with three overarching goals, developed in 1991:
    i. To provide strong protection of the Nation's aquatic environment, including wetlands
    ii. To enhance the efficiency of the Corps administration of its regulatory program
    iii. To ensure that the Corps provides the regulated public with fair, reasonable, and timely decisions
b. Implementation of the Corps regulatory authority under the Clean Water Act, Rivers and Harbors Act, and the Marine Protection, Research, and Sanctuaries Act requires the integration of the concepts of environmental sustainability, the interdependence of life and the physical environment, balance between the human and natural environments, decision accountability, reduction of cumulative impacts, integrated approach to environmental problem solving, and active public relationships. This integration happens in various ways, including:
    i. Balancing the relevant extent of public and private needs in light of conflicting resource demands such as environmental, social, and economic concerns

ii. Evaluating the extent and permanence of beneficial or detrimental effects of impact proposals on the natural and human environment
iii. Ensuring the program is directed toward restoring and maintaining the physical, chemical, and biological integrity of the nation's water resources
iv. Implementing a seven point public service commitment to which all regulatory project managers are expected to adhere
v. Accepting accountability for resource-related decisions regardless of whether those decisions are favorable or adverse to the public, resources, or both
vi. specifically tailored to activity/basin/region-specific criteria (e.g. special area management plans); and encouraging the development and use of mitigation banks and in-lieu fee agreements for compensatory mitigation
vii. Utilizing the central role that public involvement plays in the administration of the program to seek input from stakeholders, the general public, the scientific community, academia, and numerous others during the permit evaluation process
viii. Actively partnering with sister Federal, regional, state, and local agencies and interest groups to safeguard objectivity and specific decision-making activities advocating watershed planning methodologies by promoting the use of local, regional, and national permitting instruments

c. Yearly meetings of Regulatory management and staff from all levels accomplishes:
   i. Open and frequent exchange of ideas and partnering opportunities
   ii. Enhanced team building
   iii. Introduction of national guidance and principles (e.g. Environmental Operating Principles were a significant agenda item at the FY 02 conference in June)
d. Regulatory I, IIA, IIB, III, IV, V, and VII (PROSPECT)
   i. Introduces and reinforces public service commitments, program goals, and specific program implementation to new and developing regulators
   ii. Includes extensive instruction on environmental evaluation, considerations, balancing of resource and public needs and consequences
   iii. Stresses balancing public and private needs with environmental consequences of development

Directorate of Military Programs
Environmental Division Initiatives
That Support the EOP
6 January 2003

1. Measures of Sustainability (Principle 1)

a. Working to identify measures of sustainability for our activities and projects (CEMP-R)

2. Environmental Dredging (Principles 1, 4 6 & 7)

a. In light of some confusion among Corps members relative to environmental dredging & in light of the increasing numbers of sites requiring such dredging, CEMP-RS is supporting others in HQUSACE, e.g., CECW-O and CECW-P, in seeking to clarify the USACE approach to environmental dredging requirements identified by State and EPA (CEMP-R)

3. Activities in support of Waste Prevention, Recycling and Federal Acquisition, Executive Order 13101 (CEMP-I)

a. CEMP-R is outreaching to procurement functions in HQUSACE to ensure DA's and other executive agencies environmental preferable purchasing successes are adopted throughout USACE.

4. Cradle to Cradle Concept (Principles 1, 6 & 7)

a. Working to introduce senior Leaders to the latest thinking on product life cycles, so "cradle to cradle" systems thinking might be integrated into USACE designs.
b. Cradle to Cradle: the idea that" products can be designed from the outset so that, after their useful lives, they will provide biological and industrial nutrients for something new." (CEMP-R)

5. Urban Rivers Restoration Initiative (Principles 1,2 & 3)

a. Developed & executing an interagency Urban Rivers Restoration Initiative involving Cultivation & coordination on 8 pilot sites. (CEMP-R)
b. See also item #13 under Planning and Policy Initiatives

6. Supporting the CG's strategic engagements on critical environmental issues (Principle 6)

a. Supported CPG in the creation of a database of the CG's strategic environmental engagements. (CEMP-R)

Directorate of Military Programs
Installation Support Division Initiatives That Support the EOP
13 August 2003

1. Army Master Planning Publications (Principles 1 & 6)

a The first Army document addressing Sustainable Planning was developed in 1998-2000 by the Planning and Real Property Branch as a part of the Center for Public Works. This Joint Service assessment is still a basic reference.
b. A concept for planning sustainable installations was first presented at AWEEC in Atlanta, December 2000.
c. The revision of AR 210-20 has now been completed and is in final editing.
d. The AR has been staffed within ACSIM with the exception of TJAG, the final staff requirement; anticipate forwarding to USAPA by mid-September.
e. Other guidance that needs to be reviewed for incorporation of sustainable planning principles include the Master Planning Instructions, and new/existing Unified Facility Criteria (UFC) publications.
f. Much of the intellectual effort toward developing a new, more sustainable installation model comes from an informal work group including AEPI, AEC, the FORSCOM Environmental Office and ERDC (CERL).

2. Interagency Working Group on Sustainability (All Principles)

a. DOE Federal Energy Management Program sponsors a bi-monthly interagency work group, of which we are regular members.
b. Have contributed to Working Group sponsored studies on US Army approach.
c. A Sustainability Conference will be held in Fort Carson, CO 6-10 October '03.

3. Evaluation Tools (Principles 1 & 6)

a. Sustainable Planning and Rating Tool (SPiRiT). Planning Branch has been involved with the development, fielding and improvement of SPiRiT
b. Planning Branch has volunteered a member to participate with CERL team member of US Green Building Council in development of subsequent "multiple building standard".
c. Site visits to selected installations by E&C to insure quality of SPiRiT submissions and implementation – ongoing.
d. Initiation of an environmental sustainability checklist for CW and MP nonstructural designs – ongoing
e. Development of an R&D work unit on sustainability – ongoing.

4. Training Courses and Conferences. (Principles 1 & 6) Coursework modified or special presentations prepared to include a discussion of the EOP for:

a. ISD training support:
   i. Garrison Commander's Pre-Command Course
      - Quarterly @ AMSC
      - 1.5-2 hours on Master Planning & GIS (Zekert/Brewer/Wilson)
      - 4.5 hours of Planning Collaborative Exercise (Gillem/Minor/Zekert/ Brewer/Wilson)
   ii. Master Planning Prospect, 2x/yr. (2 classes in FY 2003)
      - Feb 2003 - Huntsville, AL (Burgamy/Cubbage/Zekert)
      - Jul 2003 - Seattle, WA (Burgamy/Cubbage/Zekert/Wilson)

- Apr 2004 - Washington, DC (Burgamy/Cubbage/Wilson)
- July 2004 - Huntsville, AL (Burgamy/Cubbage/Wilson)

iii. DPW Orientation Management Course, 3-4x/yr.
- Alexandria, VA

iv. American Planning Association (APA) and Federal Planning Division (FPD)
- Apr-May 2003 - Denver, CO
- Apr-May 2004 - Washington, DC

v. Installation Management Institute (IMI)
- Jan 2003 - Orlando, FL
  Presentations
  - Master Planning Overview (Zekert/Brewer/Wilson)
  - Master Planning 101 (Zekert/Brewer)
  - Sustainable Planning (Wilson)
  - GIS in Planning (Wilson)
  - Critical Infrastructure Protection (Zekert/Tomko)
  - Planning Collaborative Exercise (Gillem/Zekert/Wilson)
- Jan 2004 - Dallas, TX
- MP/RP Workshop - Roanoke, VA
  - Hosted by HQ-IMA
  - RPLANS & IFS RPI Issues
  - 19-21 AUG 2003
- MP Workshop - San Diego, CA
  - Hosted by HQUSACE - CEMP-IP-ISD, 27-31 OCT 2003
  - Issues
    - Area Development Planning
    - Summary Development Frameworks (or Digest/Plans)
    - Tools
    - Program Processes & Content
- DPW World Wide
  - Dec 2002 - Washington, DC
  - Dec 2003 - Washington, DC

vi. E&C training support:
- Organization of a series of EOP Workshops to identify requirements needed to implement the EOPs in the USACE engineering community - completed
- Formation of PDTs to implement Action Plans developed by the EOP Workshops - October 2003.
- Formed a PDT and began planning for the 2005 Environmental & Natural Resources Conference - ongoing
- Attended several environmental and sustainability conferences & workshops - ongoing.

5. ISD Web Page (All Principles)

a. Planning & Real Property Webpage has been modified this year to include a special sustainability section with links to the USACE SDD website at CERL and other related sites.

6. VISIONS News Letter (All Principles)

a. VISIONS is an electronic newsletter published for Army master planners, real property managers and GIS managers. The publication target is monthly or quarterly starting in September 2003.

7. Transformation of Installation Management (TIM) and Transformation of Installation Support (TIS) (All Principles)

a. USACE support for TIM initiative will incorporate application of USACE environmental operating principles. TIM is the major base operations management action in the Army, and USACE expects to make major contributions to the successful implementation. Our support will strive to reflect the EOP in all phases.
b. TIS is USACE's initiative to help reshape our command's support to achieve the goals and objectives of TIM. The EOP will be used to help guide this TIS initiative.
c. Installation Transformation Wargame. The second Installation Wargame was held on 22 July at the National Defense University at Fort McNair. Twenty-nine 'Players' from the Army, the Services, Defense and the private sector spent the day discussing the 'characteristics', 'interfaces', 'enablers' and 'blockers' of installations in 2015 and beyond. Notable Players included MG Lust (host), MG Johnson (USACE), Dr Fiori (ASA/I&E), Phil Grone (PDASDUSD), Dave Skiven (Exec Dir Worldwide Facilities/General Motors), LTG (Ret) Hank Hatch, RADM Cole (Ashore Readiness Division). Five (5) representatives from USACE, the DA and DoD (Get Moy/Installations Requirements and Management) served as Game 'Observers'. Frank and lively discussions in workgroups and plenary sessions produced many thoughtful observations and recommendations, including the need for a DoD 'champion' to promote and defend 'joint' installation planning, the need for more flexible/adaptive plans and designs to respond to ever-changing installation requirements, the need for investments based on life-cycle economic analysis, and the realization that thoughtful BRAC actions now will ensure success of installations in 2015 and beyond. A Wargame AAR will be presented to MG Lust on 8 August. He is currently staffing several action items from Wargame outputs, and has expressed interest in promoting the idea of a DoD-level Installation Wargame.

8. Public Works Digest (All Principles)

a. The ***Public Works Digest*** features an environmental section in almost every issue that highlights current events, late-breaking policy changes, installation management issues, installation success stories as submitted and/or training available in the environmental area. The traditional environmental issue (May/June) of the ***Digest*** is totally dedicated to environmental issues to include all of the aforementioned subjects with input from HQ USACE, AEC, OACSIM, IMA, installations, other government agencies, and the other Services in addition to private industry. For example, the facilities engineering issue (July/August) had articles on sustainable design and development, recycling and Low Impact Development Workshops. The September/October issue (currently under a call for articles) already has an article on the Army Environmental Cleanup Program with promises of others from AEC and a few installations.

9. Installation Support Program Management (All Principles)

a. USACE Installation Support Program is the umbrella for a wide-variety of reimbursable support provided to Army and other DOD installations. We will work to reflect and incorporate the EOP in this support in order to make our services more customer-satisfying and provide more sustainable benefits to the Army.
b. CEMP-IP has requested funding in FY 2004 for revising the Master Planning Instructions to address the Army's 5 pillars of installation management, relationships and processes among USACE, ACSIM, and HQIMA, AR 210-20 policy, etc.
c. Master Planning PMBP pending completion after MP Workshop in San Diego to allow for appropriate support and responses to feedback from conference and Final Draft of AR 210-20 in the PMBP document.

Environmental Sciences R&D Activities That Support the EOP
September 11, 2002

1. System-wide Modeling, Assessment, and Restoration Technologies Program (SMART) (All Principles)

The SMART R&D program embodies a holistic approach to meeting the 7 Principles in the EOP. During Program development in FY 02 an interdisciplinary team comprised of Principle Investigators from the ERDC labs and IWR/HEC formulated and refined research focus areas with input from the MSCs and districts. Additional input from other agencies was provided in workshop forums, and is presently being updated through interagency meetings and correspondence. The research focus areas were developed to identify and develop required ecological process information for effective tool development and efficient technology transfer and insertion for the system-wide assessment of CE activities on the environment, and to allow for social and economic considerations in a defining balanced approachs to natural resources management. Program development was closely coordinated with related Research Programs such as RSM, TOWNS, EMRRP, Geospatial, and IMDM. Early initiatives focused on identification of information gaps, interagency coordination needs, input from the MSCs and districts, and the initiation of collaborative efforts with MSCs and their sponsors for the development of prototype system-wide applications. An iterative process will be used to provide feedback from end-users (i.e., MSCs and districts) and between the research focus areas and related R&D Programs. SMART directly responds to the 7 Principles.

a. SMART provides enhanced tools for decision-making that allows evaluation of operation, management, and restoration alternatives with balanced considerations for effects on associated environmental, social, and economic assets of the affected system over multiple scales. (Principle #1)
b. A major effort in SMART is to link hydrodynamic/physical models to ecological/biological (including social) models to allow for balanced analysis of alternatives. (Principle # 2)
c. The use of stakeholder input from planning to implementation, guidance from IWR/HQ policy studies, and effective communication with other agencies and NGOs throughout the development of SMART tools and applications provides tools agreed to and accepted by consensus. (Principle #3)
d. Applications with SMART tools takes into account corporate responsibility/accountability from the onset and contains opportunities for evaluating the continued viability of natural systems. Implementing a Product Life Cycle plan to monitor milestones, products, and applications provides a system of metrics to evaluate product development and use. (Principle # 4)
e. SMART is designed to allow system-wide assessments that deal with issues of multiple scales and multiple projects within a system (including projects built/operated by others). EPA has already recognized the value of this approach for assessing and mitigating for cumulative impacts and the approach in SMART is parallel to their outlined method for cumulative impact assessment and adds a means for quantification. (Principle # 5)
f. SMART was developed using an integrated, multidisciplinary approach providing access to the primary knowledge bases within the Corps. SMART tempers development with practical input from MSCs and districts, and incorporates the knowledge and expertise in other agencies and organizations to provide increased understanding of our work. (Principle # 6)
g. SMART applications incorporate this philosophy from the beginning of process research, through the development of tools and technologies, and throughout the implementation and infusion of developed products including effective technology transfer to end-users with appropriate training. (Principle # 7)

2. Regional Sediment Management Program (RSM) (All Principles)

The RSM Program was developed in FY 01 to provide tools and guidance for managing sediment in conjunction with Corps project functions and activities. The tools will be helpful in forecasting the impacts of RSM actions (Principles 1, 2, and 5). The guidance will lay out approaches for executing RSM in projects. Part of the guidance provided through RSM activities will be helpful in developing partnerships and work with RSM Stakeholder groups (Principles 3, 5, 6, and 7)

a. RSM is part of achieving sustainability. Sediment has to be managed regionally to achieve environmental sustainability. (Principle #1)
b. RSM is in fact trying to look at the bigger picture and determine interdependencies. The tools and knowledge being developed will actually help in predicting the large and small-scale consequences of any sediment management actions the Corps takes. (Principle #2)
c. The RSM Program is developing decision support tools and techniques to help in optimizing balance and synergy between human activities and natural systems. Also, the Corps RSM activities require partnership with other interest groups covering development interests and environmental interests. (Principle #3)
d. Pursuing RSM and developing our capabilities in that regard makes the Corps more responsible in the eyes of others. It appears that WE ARE accepting responsibility and accountability. (Principle #4)
e. The assessment and mitigation of cumulative impacts is at the heart of RSM. (Principle #5)
f. RSM is done in partnerships. The knowledge we gain through RSM R&D and demonstrations is becoming knowledge for the Nation to use. We are documenting how to do RSM through our RSM Demonstration Program experiences. (Principle #6)
g. The approaches RSM is developing requires us to respect, listen to, and learn from our partners. We are also helping them do the same with each other. (Principle #7)

3. Ecosystem Management & Restoration Research Program (EMRRP) (All Principles)

The EMRRP addresses current R&D issues & needs of Corps planners, engineers, natural resource managers and regulatory personnel related to ecosystem management and restoration. The main objective is to provide the necessary tools and guidance to predict and reduce potential environmental impacts from its water resource projects and to insure the environmental sustainability of these projects. As such, this program addresses all 7 Corps Environmental Operating Principles (EOP) as outlined below:

a. *EOP Principle #1 stresses the need to maintain a healthy, diverse, sustainable environment.* The EMRRP is addressing this need by developing guidelines for ecosystem management and restoration that include an emphasis on increased habitat value and species diversity and thereby more productive/sustainable ecosystems.
b. *EOP Principle #2 stresses the need to consider environmental consequences of Corps' actions.* The EMRRP is developing tools to predict and reduce undesirable environmental effects resulting from Corps activities, e.g., a review of the effects of reservoir operations on habitat for Threatened & Endangered species.
c. *EOP Principle #3 stresses the need to develop projects that seek a balance between economic and environmental considerations.* The EMRRP supports the development of rapid/cost-effective techniques for ecosystem restoration & management that will also cause the least amount of disturbance to the environmental integrity of the system being impacted.

d. *EOP Principle #4 stresses the need to accept responsibility/accountability for our activities / decisions.* EMMRP guidance is based on NEPA / Clean Water Act requirements and as such is intended to insure the Corps' compliance with these and other environmental laws/directives.

e. *EOP Principle #5 stresses the need to assess and mitigate for cumulative impacts to the environment.* The EMRRP is addressing this need through the development of a Cumulative Effects Handbook that will provide Corps users with state-of-the-science, innovative ideas for measuring/evaluating these impacts.

f. *EOP Principle #6 stresses the need to build and share an integrated knowledge base of scientific, economic and social considerations to use in evaluating our projects.* The EMRRP has been proactive in developing cooperative relationships with other State, Federal, and local agencies/universities/societies to promote collaboration and to insure the Corps has access to cutting-edge technology.

g. *EOP Principle #7 stresses the need to find win-win solutions to our Nation's problems that protect and enhance the environment.* The EMRRP is providing the science-based tools that are necessary for the Corps to make accurate, informed predictions/decisions regarding its proposed activities. This knowledge will allow the Corps to recommend "win-win" alternatives that address not only the physical needs of the project but also the environmental aspects as well.

4. Direct Applications of R&D Tools, Guidance and Approaches to Environmental Restoration and Management (All Principles)

The Corps' ERDC labs are engaged in many studies and projects with MSCs, districts, and other agencies in applying tools, guidance and approaches developed through R&D. Examples of these applications include the lake Allatoona watershed study (SAM), Upper Mississippi River navigational feasibility study (MVR), Chesapeake Bay restoration (NAB), San Jacinto watershed study (SPL), Housatonic River restoration project (EPA). These studies and projects are being conducted with attention to the EOP to ensure environmental sustainability, consequences of Corps actions, assessment of environmental impacts, economic/societal and environmental balance, knowledge sharing with stakeholders and project partners, and environmental enhancement.

Appendix B

Materials for the LTG Fredrick J. Clarke Award for Leadership in Environmental Sustainability

CECW-P 19 August 2002

MEMORANDUM FOR COMMANDERS, MSC

SUBJECT: The Lieutenant General Fredrick J. Clarke Award for Leadership in Environmental Sustainability

1. The purpose of this memo is to provide you with criteria and processing information for our recently established environmental sustainability recognition program.

2. The Lieutenant General Frederick J. Clarke Award for Leadership in Environmental Sustainability shall be awarded to the division and district whose programs best represent and exemplify the U.S. Army Corps of Engineers dedication to planning, design, construction, operation and maintenance of environmentally sustainable civil, military, regulatory and other activities. The Environmental Operating Principles (EOP) were provided to you this past March, and I realize that many of you haven't had enough time to fully incorporate the EOP into your programs; however, I believe this presents us with a unique opportunity to merge two significant initiatives.

3. The shift to the Corps-wide implementation of the Project Management Business Process (PMBP) provides the vehicle to develop your implementation plans for incorporating the EOP. We expect you to formulate Project/Program Management Plans (PMP) to implement the EOP. The PMPs should describe your strategies and operational plans for the understanding and incorporation of the EOP into all your division and district activities. Initial division and district award recipients will be selected on the basis of the overall program expectations developed consistent with the EOP in the form of submitted strategic and operational plans. Subsequent award recipients would be selected based increasingly upon their program accomplishments through implementing those strategies and plans described in their PMPs.

4. District submittals shall be forwarded to their respective division offices by 1 November 2002. Division offices will select the district proposal that represents the best of the district submittals and, together with their own award submittal, submit both packages to headquarters by 22 November 2002, attention CECW-P. An Award Review Panel will be assembled in headquarters to review the submittals. The district award will be announced at the District Engineers Conference in January 2003. The Division award will be announced at the Command Council Meeting in mid to late February 2003.

1. Further details regarding criteria and other factors to consider are attached. I strongly encourage you to enter this annual competition as we further integrate the EOP into all our activities using the PMBP.

/s/
ROBERT B. FLOWERS
Lieutenant General, USA
Commanding

Encl

Criteria
The LTG Fredrick J. Clarke Award
For
Leadership in Environmental Sustainability
19 August 2002

General:

The Environmental Operating Principles (EOP) serve as a guide to aid division and district commands in achieving programs that exemplify leadership in environmental sustainability. Divisions and districts shall submit Project/Program Management Plans (PMPs) consisting of no more than 20 typed pages (Times New Roman font, size 11) describing their approach for achieving environmental sustainability throughout their programs, by integrating the EOP into their various program areas. As an aid in assembling the award packages (PMPs) the following factors, based upon each of the EOP, may be used to describe goals, objectives and potential accomplishments in developing your PMP. However, you are not restricted to these factors, if circumstances warrant a different management and/or technical approach. Be innovative!

Factors for the EOP:

1. Strive to achieve Environmental Sustainability. An environment maintained in a healthy, diverse, and sustainable condition necessary to support life.

- How will your activities employ collaboration in meeting this principle?
- How will life cycle considerations be employed?
- How will a systems approach be used, e.g., a watershed approach, and how can it potentially improve our activities?
- Describe the value of multi-objective activities, i.e., the environmental, economic and quality of life benefits streams anticipated.
- How will materials, non-harmful to the environment, be utilized in the design of your activities?
- How will your personnel be familiarized with the Army's SpiRiT and/or EPA's Energy Star rating systems and how will they be implemented within your command?
- Others.

2. Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of Corps programs and act accordingly in all appropriate circumstances.

- How will your activities avoid negative physical, chemical and biological effects upon the environment?
- How will implementation of the EOP benefit ecological conditions within the watersheds of your division/district?.
- How will incorporating the EOP improve water quality, availability and distribution within your division/district?
- Discuss any new and/or innovative designs to be employed in providing traditional water resources services by your activities.
- Others.

3. Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.

- How will your activities balance environmental and economic benefits streams to improve the quality of life in the communities affected by your activities?
- What new and innovative methods will you use to bring about the balance discussed above?
- Describe how the concept of "Green Building" has or will influence the design of your activities by showing reduced waste streams, greater use of recycled and non-toxic materials and the employment of energy efficient materials and generators.
- How will collaboration potentially contribute to each of the items listed above in this category?
- How will you empower your personnel to look for innovative solutions and programs that assimilate environmental components into our traditional activities?
- How will existing processes and procedures be assessed to more fully integrate environmental considerations into day-to-day decision-making?
- Others

4. Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.

- Describe the process(s) to be put into place for educating and implementing the EOP within the workforce of your District/Division.
- What indicators are being developed to demonstrate the achievement of the EOP?
- What means and measures of "going beyond compliance" will be used in your District/Division?
- Demonstrate how any innovative technologies instituted within your programs have or will be publicized to the general public, within the federal community and within the Corps.
- How will your personnel make your cost-sharing partners and SFO customers aware of and supportive of the EOP?
- Others.

5. Seek ways and means to assess and mitigate cumulative impacts to the environment; bring systems approaches to the full life cycle of our processes and work

- Describe the nature of your impact assessment process, with particular emphasis upon addressing cumulative effects.
- What has been the nature of collaboration (federal, state, local, and/or NGO) involved in the process described immediately above?
- What needs do you see as aiding the successful accomplishment of a cumulative impact analysis?
- Others.

6. Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.

- How will you use the multi-disciplinary team approach to successfully implement the EOP?
- Have specific technical talents been considered from other than Corps assets? Discuss their likely future contribution.
- What type(s) of environmental sustainability indicators have or will be developed to assess the success of your activities and how do they relate to the environmental issues in your region?
- To what degree will the information developed in the process of implementing the EOP be shared with other federal, state, local, and NGOs within your region?
- Demonstrate how your personnel are to be trained in eco-friendly design?
- Describe what new tools or products your personnel have identified to our R&D community to be developed in assisting implementing the EOP?
- Others.

7. Respect the views of individuals and groups interested in Corps activities, listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the Nation's problems that also protect and enhance the environment.

- Describe the process to be put into place enabling non-Corps entities to more fully participate and become engaged in our activities.
- To what extent will NGOs participate and, more importantly, contribute to sustainable solutions within your Division/District?
- How will the participation of non-Corps entities improve the final recommendation of proposed activities – explain their potential contribution?
- Describe the processes by which your personnel will dialog with and engage environmental organizations.
- Suggest a process that would measure improvement in the relationships and a decline in criticism of our activities by environmental organizations.
- In what national environmental competitions have any of your activities (projects/programs) been submitted?
- Others.

Appendix C
Proposed Sustainability Book Club
Reading List

Note: this is the Book Club list that the FORSCOM QUEST participants read and discussed. You can find out more information about the QUEST at http://www.envquest.com

The Book Club Bibliography, By Author:

Anderson, Ray, Midcourse Correction:Towards a Sustainable Enterprise: The Interface Model, The Peregrinzella Press, Atlanta, 1998.

AtKisson, Alan, Believing Cassandra: An Optimist Looks at a Pessimist's World, Chelsea Green Publishing, 1999.

Benyus, Janine M., Biomimicry: Innovation Inspired by Nature, 1997.

Colborn, Theo, Dumanoski, Dianne, and Myers, John Peterson, Our Stolen Future, 1997.

Ford, Henry, Today and Tomorrow, Productivity Press, Portland Oregon, 1926.

Hawken, Paul, The Ecology of Commerce: A Declaration of Sustainability, HarperBusiness Press, 1993.

Hawken, P., Lovins, A., and Lovins, L., Natural Capitalism, Little, Brown, and Company, 1999.

McDonough, William, and Braungart, Michael, Cradle to Cradle: Remaking the Way We Make Things, North Point Press, April, 2002.

Nattrass, Brian and Altomare, Mary,The Natural Step for Business: Wealth, Ecology and the Evolutionary Corporation, New Society Publishers, 1999.

Nattrass, Brian and Altomare, Mary, Dancing with the Tiger: Learning Sustainability Step by Natural Step, New Society Publishers, Gabriola Island, BC, Canada, 2002.

Quinn, Daniel, Ishmael: An Adventure of the Mind and Spirit, Bantam Books, New York, 1992.

Weisman, Alan, Gaviotas: A Village to Reinvent the World, Chelsea Green Publishers, 1998.

Womack, James and Jones, Daniel, Lean Thinking: Banish Waste and Create Wealth in Your Corporation, Simon and Shuster,1996

Appendix D
HQ PDT for Development and Implementation of the PgMP for the Environmental Operating Principles and Doctrine

Name	Functional Area	Role	Contact Telephone
SES Champions			
Kristine Allaman	Installation Sup., MP	SES Champion	202 761-5763
Rob Andersen	Chief Counsel	SES Champion	202 761-0769
Dwight Beranek	Dep. Ch., MP	SES Champion	202 761-0382
Don Bashum	E&C, Civil Works	SES Champion	202 761-8826
Bill Dawson	P&P, Civil Works	SES Champion	202 761-0115
Jim Johnson**	P&P, Civil Works	SES Champion	202-761-0115
Larry Lang	Ops, Civil Works	SES Champion	202-761-4670
Pat Rivers	Environmental, MP	SES Champion	202 761-0858
Mike White	Ops., Civil Works	SES Champion	202 761-1983
Team Co-Leaders			
Bill Klesch	Civil Works	P&P, Sustainability	202 761-4611
Jim Wolcott*	Civil Works	Eng. & Construction	202-761-8560
Team			
Steve Austin	Civil Works	Operations, Natural Res.	202-761-1940
John Barko	ERDC-EL	Research & Development	601-634-3654
Shelia Bloom	Strategic Group	CG's Strategic Group	202 761-0320
Erika Hieber	IWR	Civil Work Integration	703 428-7250
Michael Kingsley	Strategic Group	CG's Strategic Group	202 761-1870
Mike Klosterman	Civil Works	Eng & Construction	202-761-5887
Jack Mahon	Counsel	Legal Counsel	202 761-8538
Dave Mathis	HQ R&D	Research & Development	202-761-1846
Charlie McKenna	ERDC-TEC	Research & Development	703-428-7133
Jane Mergler	Military Programs	MP Integration	202-761-5603
Kirk Stark	Civil Works	Operations, Regulatory	202-761-4664
Janice Smith	Civil Works	Operations, Natural Res.	202-761-4657
Candy Walters	Public Affairs	Communications	202 528-4285
Rik Wiant***	Installation Planning	Military Integration	202 761-5788

* Retired, January 2003
** Retired, May 2003

*** See Dedication

Appendix E
Environmental Management System
Policy Memo and Program Management Plan

CECW/CEMP 19 May 2003

COMMANDER'S POLICY MEMORANDUM # 11

SUBJECT: Environmental Management Systems in the U.S. Army Corps of Engineers

1. In March 2002, a set of broad Environmental Operating Principles (EOP) and Doctrine was adopted to guide us in doing our work now and in the future. Adopting these Principles and Doctrine sends a signal that USACE is embracing both the challenge and opportunity to serve the Army and the Nation in protecting our natural resources upon which our economy and security depend. With increasing frequency, we are integrating the EOP and Doctrine into our business processes and decision-making. A major step USACE is now taking is to establish Environmental Management Systems (EMS). EMS represents a framework through which an organization identifies attainable indicators of environmental performance, continuously seeks to improve its environmental performance in measurable ways, and documents these improvements. Environmental management systems are required by Department of Defense and Department of Army (DA) policy, and by Executive Order 13148 titled "Greening the Government through Leadership in Environmental Management." While these EMS requirements are oriented toward Federal facilities, they do not preclude the eventual development of programmatic environmental management systems. As such, while some EMS activities will be implemented at Federal facilities for which USACE is accountable, EMS should be integrated into all program areas assuring that USACE planning, design, and construction initiatives incorporate consideration of EMS requirements.

2. Why should the Corps adopt environmental management systems (EMS)? EMS provides an excellent mechanism to fully integrate the EOP and doctrine. EMS provides the framework necessary to support installations within the transforming Army, and support other Federal agencies. As DA has directed, that USACE environmental management systems will be based on the International Organization of Standardization framework, ISO 14001. Fortunately, USACE has many programs and systems in-place that fulfill elements of an ISO 14001 environmental management system and these existing capabilities should continue to be used. Official certification and third-party registration of the use of ISO 14001 standards are not required. Commanders who wish to pursue registration and certification should demonstrate mission benefits.

3. Detailed facility-based implementation guidance and guidance to assist program offices in implementing district or program-wide EMS will soon be distributed. Making systematic environmental management an integral part of our day-to-day decision-making and business process is an important step in enhancing mission performance and effective use of resources, and in telling our story to Congress and the American people. The key to an effective environmental management system is involvement and support by commanders.

/s/
ROBERT B. FLOWERS
Lieutenant General, USA
Commanding

USACE Environmental Management Systems Implementation
Project Management Plan
Final Draft

1. **Introduction**. The U.S. Army Corps of Engineers is taking action to comply with DoD and DA directives regarding Environmental Management Systems. This Project Management Plan provides the general framework for, and specific actions to be taken by, HQUSACE in support of the districts' and field operating activities' implementation of Environmental Management Systems at federally owned, Corps managed facilities. While this PMP does not outline the specifics of EMS implementation, as those specifics are the purview of the districts and FOAs, it does outline HQ actions in support of the field's execution of Environmental Management Systems.

2. **Goals and objective**. The U. S. Army Corps of Engineers (USACE) Environmental Management Systems (EMS) Implementation Project Management Plan (PMP) has two goals:

a. **Develop and implement a plan to incorporate EMS at appropriate USACE facilities (e.g., Civil Works owned and operated facilities, ERDC facilities, USACE owned district buildings) by Dec 05 as specified in DoD and DA directives, and Executive Order 13148.**

- **Build depth (e.g., increasing awareness and substantive knowledge of, commitment to, resource support of, etc.) regarding Environmental Management Systems within the USACE Military Programs and at engineer districts performing military work in order to support the implementation of EMS at installations within the transforming Army.**

The objective of the PMP is to identify and plan step-by-step actions that will enable achievement of the goals included above.

3. **Background**. Environmental management systems advance the integration of environmental management and business functions into our mission. They will enable the USACE, through a set of processes and practices, to reduce its environmental impacts and increase its operating efficiency. Environmental management systems also provide a framework for integrating the USACE Environmental Operating Principles and Doctrine into USACE practices and culture. EMS will help the USACE to systematically manage and reduce its environmental "footprint," that is, the environmental impact associated with activities, products, and services generated by USACE facilities or programs. Environmental Management Systems involve a continual cycle of planning, implementing, reviewing and improving the processes and actions that the USACE undertakes to meet its business and environmental goals. In this way, environmental management systems are very much a part of the USACE project management business process.

4. **Statutory and Policy Framework**.

- Memo, subject: "EMS Implementation Criteria and Metrics," J. P. Woodley, Jr., Assist Deputy Under Secretary of Defense (Environment), 30 Jan 2003
- Memo, subject "DoD Environmental Management System, Under Secretary of DoD, E. C. Aldridge, Jr., 05 April 2002
- Letter to Secretary of Defense Rumsfeld from OMB Director and CEQ Chairman, 1 April 2002
- Memo, Subject: "New Installation Management Requirements," Major General R. L. Van Antwerp, DAIM-ED-C, 06 August 2001
- Executive Order 13148, "Greening the Government through Leadership in Environmental Management," 2000
- Memo Subject: "USACE Interim Policy on Environmental Management System (EMS) and IS) 14001," Major General Albert Genetti, Deputy Commander, USACE, 02 March 1998

5. **Scope of Effort**. The Environmental Management Systems Implementation PMP is intended for use in implementing Environmental Management Systems (EMS) at the U. S. Army Corps of Engineers (USACE) facilities and programs, as appropriate. The PMP is based on guidance found in the International Organization of Standardization Environmental Management Systems Specification (ISO 14001); Executive Order 13148, entitled "Greening of Government through Environmental Leadership"; and the memo cited above from the Deputy Under Secretary for Environment. The task of the EMS Implementation Team is to support and enable full implementation of EMS at appropriate facilities; and to analyze best EMS practices and institute them within USACE. The products of the Team will include methods and opportunities for fostering learning about EMS, guidelines and tools for implementation, and means to integrate EMS within the USACE Program Management Business Process. All must be achieved in resource neutral ways, i.e., not requiring any additional budget or staff resources other than what currently exists within USACE.

6. **EMS Implementation Project Delivery Team**.

SES Champions:

- Patricia A. Rivers, PE, Chief, Environmental Division (CEMP-R)
- Larry Lang, Ph.D., Acting Chief, Operations Division (CECW-O)

HQ & MSC Team Members:

- Janice Smith, Team Leader, CECW-ON, 202-761-4657
- Mary Burrow, CEMVD, 601-634-5908
- Robert Cribbin, CERE-C-WR, 202-761-7422
- Bob Fenlason, CEMP-RI, 202-761-8801
- Sandra Frye, CENWO, 402-697-2635
- William Klesch, CECW-PG, 202-761-4611

- Michael Loesch, CELRD, 513-684-3192

- John Lucido, CENWK, 816-983-3649
- John Mahon, CECC-E, 202-761-8538
- Jane Mergler, CEMP-RS, 202-761-5603
- Carolyn O'Rourke, ERDC-CERL, 217-398-5553
- Larry Robinson, CELD- ZE, 202-761-8774
- Joe Svirbely, CELRD, 513-684-3029
- Candice Walters, CEPA-MP, 202-528-4285

The team leader, in consultation with the Team, will organize work and identify the responsibilities of the team members. Team members will be responsible for individual products and for coordinating their products with other team members. Team members will provide input on EMS-related issues pertaining to their specific organization and/or expertise.

7. **Tasks and Schedule**.

Task	Lead Office(s)	Estimated Completion
Task 1 – (Policy Development) Release of a USACE environmental management systems policy statement consistent with DoD and Component EMS policies	CEMP-R CECW-O	NLT Spring 03
Task 2 – (Learning) Conduct EMS awareness brief at USACE Environmental Conference, April 03, Fort Worth,TX	CECW-O CX	NLT Spring 03
Task 3 – (Analysis) Develop criteria for determining Corps facilities where EMS is appropriate	CECW-O CX	NLT Summer 03
Task 4 – (Analysis) Develop an EMS "self-assessment" tool for appropriate facilities consistent with ISO 14001 and related EMS Policies	CEMP-R CECW-O CX	NLT Fall 03
Task 5 - (Policy Development) Develop EMS guidance to assist program offices (military, civil, and work for others) in implementing internal district or program-wide EMS to better serve their customers	CEMP-R CX	NLT Fall 03
Task 6 - (Learning) Develop awareness-level EMS training brief for use at facilities determined to be appropriate for EMS implementation	CECW-O CX	NLT Fall 03
Task 7 - (Feedback) Quarterly in-progress-reviews to the Issues Management Board (IMB)	CEMP-R CECW-O	NLT Fall 03

regarding progress of EMS implementation		
Task 8 - Written project management plans for each appropriate facility with defined dates, identified resources, and organizational responsibilities for implementing EMS consistent with ISO 14001 and related EMS policies	FIELD ACTIVITIES	NLT Spring 04
Task 9 - Written project management plans for each program office (military, civil, and work for others) for implementing EMS consistent with ISO 14001 and related EMS policies, with defined dates, identified resources, and organizational responsibilities	FIELD ACTIVITIES	NLT Fall 04
Task 10 – Inauguration of EMS at appropriate USACE facilities	FIELD ACTIVITIES	NLT Dec 05
Task 11 – Inauguration of programmatic EMS at USACE program offices (military, civil, and work for others)	FIELD ACTIVITIES	TBD

8. **Cost Estimates**. EMS implementation should be accomplished using existing resources. The primary cost are the labor of Project Delivery Team members, whose salaries are fully funded . Participation in EMS implementation is within the scope of normal duties of PDT members. There is added cost associated with third party registration to the ISO 14001 standard and certification, but this is **not** required.

9. **Reporting Requirements**. Annual reports to the Issues Management Board, more frequent reporting to SES Champions and key program directors.

10. **Performance Measures**. We will use the measures below, items 10a-f, to measure successful implementation of environmental management systems and track progress in assuring compliance with Section 401(b) of Executive Order 13148, entitled "Greening of Government Through Leadership in Environmental Management"; and subsequent DoD and DA directives.

- USACE EMS Implementation Metrics will be consistent with Army and DoD policy, as well as Army EMS Implementation Metrics and DoD EMS Implementation Metrics.
- The definition of "facility" includes all USACE owned and operated Civil Works projects and facilities, USACE owned ERDC facilities, and USACE owned district buildings units.
- Appropriate facilities will be identified using the criteria established in the USACE EMS Implementation Guide, based on facility size, complexity,

environmental risk, regulatory compliance history, and current and future missions.

A. Identification of Appropriate Facilities. Evaluation of existing facilities using established criteria in the USACE EMS Implementation Guide. *(Criteria Under development)* Field input received that identifies EMS appropriate facilities.

Response categories: No action
Begun but not completed
Completed

B. Policy. Percentage of appropriate facilities with an EMS policy statement. Policy shall be consistent with Commander's Policy Memo #11. Policy shall be signed by the Facility or Operations Manager and endorsed by the District Commander or his designee. EMS Policy shall be made available to all facility personnel and to the public.

C. Self-Assessment. Percentage of appropriate facilities that complete a facility-wide EMS self-assessment consistent with ISO 14001, and document self-assessment results.

D. Implementation Plan. Percentage of appropriate facilities with a project management plan (PMP) for implementing the facility EMS. EMS-PMP shall be consistent with Commander's Policy Memo #11. EMS-PMP shall include defined dates, identified resources, and organizational responsibilities. EMS-PMP shall be developed in an integrated, cross-functional team environment. EMS-PMP shall include integrated performance indicators/measures for improvement as per ISO 14001 requirements.

E. Prioritized List of Aspects. Percentage of appropriate facilities that have developed and documented a list of environmental aspects consistent with ISO 14001. Environmental aspects are elements of USACE activities, products, and services that can interact with the environment. An environmental aspect signifies the potential for an environmental impact, whether that impact is good or bad

F. Training. Percentage of appropriate facilities at which facility personnel have received awareness-level EMS training consistent with facility EMS PMP.

G. EMS Effectiveness. The measures detailed above, items 10a-f, focus on tracking our corporate performance in implementing EMS. Environmental management systems that conform to the ISO 14001 standard must incorporate internal performance targets and methods to track performance. ISO 14001 also requires a documented procedure for recurring internal EMS management reviews. Once environmental management systems are in place there will be a follow-up action to establish corporate performance measures to monitor USACE-wide effectiveness of EMS.

11. **Points of Contact for the Project Management Plan**.

a. Team Leader - Janice Smith, CECW-ON, 202 761-4657

b. Team member – Jane Mergler, CEMP-RS, 202 761-5603