Part I

The National Environmental Policy Act

NEPA and the Integration of Economic, Environmental, and Social Goals

In 1968, the heavily-polluted Cuyahoga River caught fire. This event, along with many others, led to a national debate and a demand to create an environmental policy. In the nearly 30 years since its enactment, the National Environmental Policy Act has been a foundation of our nation's environmental policy making. Senator Henry M. Jackson, one of the principal authors of the original law, remarked that NEPA "is a congressional declaration that we do not intend, as a government or a people, to initiate actions which endanger the continued existence or health of mankind: that we will not intentionally initiate actions which do irreparable damage to the air, land and water which support life on earth."

Congress did not simply issue a declaration, however. The framers of this statute understood that true environmental protection had to be incorporated into the very fabric of federal decision-making and integrated with our social and economic aspirations. The law requires federal agencies to conduct their programs in a way "calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature exist in productive harmony, and fulfill the social, economic and other requirements of present and future generations of Americans."

While NEPA is often characterized as strictly an environmental protection statute, its goals are broader (See Box 1). It was designed to ensure that federal actions integrate economic, environmental and social goals so as to complement the goals of American communities.

The statute set forth four fundamental principles. The first is the integration of environmental, economic and social objectives—the explicit recognition that these goals are not contradictory or competing, but rather inextricably linked. The second is sound decision-making based on thorough, objective analysis of all relevant data. The third is effective coordination of all federal agencies in the development and execution of environ-

Box 1
NEPA's Policies and Goals

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage, and maintain wherever possible, an environment that supports diversity, and variety of individual choice.
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

mental policy. And the fourth is openness in decision-making—giving communities and the public a direct voice in federal decisions affecting their communities and their well-being.

To advance these principles in the day-to-day workings of our government, NEPA established two primary mechanisms. The first is the Council on Environmental Quality. Congress recognized the need for a permanent environmental body within the Executive Office of the President, not only to advise agencies on the environmental decision-making process but to oversee and coordinate the development of federal environmental policy. This entails monitoring environmental trends, assessing the success of existing policies, advising the President on the need for more effective policies and, when necessary, mediating conflicts among federal agencies.

The second is implementation of an environmental review process. NEPA requires agencies to analyze the likely environmental impacts of any major action they propose to undertake. This may take the form of an environmental assessment and, when necessary, a more detailed environmental impact statement. In any given year, federal agencies and departments prepare approximately 500 draft, final and supplemental environmental impact statements and 50,000 environmental assessments. One of the critical roles assigned to CEQ by NEPA is overseeing agency implementation of the environmental decision-making process.

In a variety of ways, NEPA plays a vital role in integrating environmental, economic, and social goals. For example:

NEPA's authority can be used to develop new programs, such as the American Heritage Rivers Initiative, that seek to simultaneously foster environmental, economic, and social goals.

Though its mandate to examine proposed major federal actions, NEPA is an instrument that can look for alternatives that strike the best possible balance among economic, environmental, and social goals.

In many instances, NEPA can not only protect the environment, but save scarce financial resources as well.

The broad goals of the NEPA statute provide ample opportunities for federal agencies to use NEPA as a critical planning tool to integrate the concerns and values of communities.

NEPA is an important tool to advance our understanding of the environment, both through educational programs and research on complex subjects such as the cumulative effects of pollution and resource degradation.

Though its oversight mandate, CEQ has provided new impetus to revise regulations to streamline the process.

NEW INITIATIVES

Rivers run through America's landscape, its history and its future. American Indians developed river settlements and ceremonial centers. Adventurers explored new territories following the river and established fortresses to protect settlers. Water-powered sawmills, flour mills and textile mills in small villages and bustling cities peppered New England and the upper South. Tankers and freighters, steamboats and barges, canoes and kayaks, skipjacks and trawlers carried trading commodities from American community to American community. Slow moving waters, rapids and shallow pools, waterfalls and eddies, and marshes teemed with life that provided food and ecological services.

On the basis of NEPA and related statutes, the federal government continuously responds to threats to the nation's river heritage. In the State of the Union Address on February 4, 1997, President Clinton announced an initiative supporting community-led efforts relating to rivers that spur economic revitalization, protect natural resources and the environment, and preserve historic and cultural heritage. He has since issued Executive Order 13061 directing agencies to establish and implement the initiative.

The American Heritage Rivers initiative is voluntary and locally driven; communities choose to participate and can terminate their participation at any time.

To enhance federal assistance to community-based projects, the federal government solicited nominations from communities wishing to designate their rivers as American Heritage Rivers. The President will designate 10 American Heritage Rivers. The communities surrounding designated rivers will receive a number of benefits, including special recognition; focused support from existing federal programs; identification of a person (the "River Navigator") to serve as a liaison between the community and the federal government; and assistance from agencies throughout the federal government. The federal government will work to integrate and streamline its approach to providing existing federal services in designated American Heritage River communities in partnership with local leadership.

Additionally, the federal government will provide a new information center on the World Wide Web for community-based projects in economic revitalization, natural resources and the environment, and historic and cultural preservation. These Web pages will include information about services that can assist community projects and provide opportunities for dialogue between communities. The federal government will also provide this information to people without access to the Internet.

The President's Executive Order creates a new committee—the American Heritage Rivers Interagency Committee—that will be responsible for implementation of the initiative. The Committee will be composed of the following members or their designees at the Assistant Secretary level or equivalent: The Secretary of Defense; The Attorney General;The Secretary of the Interior; The Secretary of Agriculture; The Secretary of Commerce; The Secretary of Housing and Urban Development; The Secretary of Transportation; The Secretary of Energy; The Administrator of the Environmental Protection Agency; The Chair of the Advisory Council on Historic Preservation; The Chairperson of the National Endowment for the Arts; and The Chairperson of the National Endowment for the Humanities.

The Executive Order applies to all federal agencies and requires each of them to be responsive to the needs of river communities.

Each of these departments and agencies oversees programs and services, authorized by Congress, that can benefit citizens in riverfront communities. By engaging many of these departments and agencies in the creation of the American Heritage Rivers initiative, the Administration has tried to ensure that the initiative is founded on the various missions they are mandated to address—including economic revitalization, natural resources and environmental protection, and historic and cultural preservation—and is directed at improving the coordination and delivery of related services.

This initiative is set apart from other related federal programs. Its purpose is to further the goals of the National Environmental Policy Act (Section 101 (b) (4)), which requires the federal government to use all practicable means to preserve important historic, cultural, and natural aspects of our national heritage. The initiative does this by supporting local efforts to preserve and protect rivers, including their contributions to the culture, economy, and environment of the area.

In implementing the American Heritage Rivers initiative, federal departments and agencies have been directed by President Clinton to act with due regard for the protections of private property provided by the Fifth Amendment.The initiative will create no new regulatory requirements or rules for property owners or state, tribal, or local governments. It will use existing federal resources more effectively to assist communities.

SEEKING BETTER ALTERNATIVES

In its traditional role of evaluating the environmental impact of proposed major

federal actions, NEPA is an instrument that can look for alternatives that strike the best possible balance among economic, environmental, and social goals. The cases briefly described below illustrate the wide variety of instances in which NEPA plays an important role in looking for solutions that satisfy these multiple objectives. These examples are placed in the context of river protection, development and management.

Duck River, Tennessee

The Tennessee Valley Authority evaluated the environmental impacts of an existing dam, construction dike, and diversion channel on the Duck River in Tennessee. Cooperating agencies included Duck River Development Agency, the Army Corps of Engineers, and the Fish and Wildlife Service.

Originally, a new dam and reservoir were to be built as the downstream component of the Duck River project. The presence of several endangered species in the potentially affected part of the river prevented the construction of the dam and reservoir. Four alternatives were considered under the NEPA process, including maintaining the current uses, two different levels of making part of the land available for development, and turning the bulk of the land into a resource management area. The associated impacts of the alternatives included reduction in the amount of land available for recreational uses, decreased groundwater and surface water quality, and decreased tax revenues.

Greybull River, Wyoming

In the Bighorn Basin in north-central Wyoming, the Bureau of Land Management and the Corps of Engineers evaluated the potential impacts of a 150-foot-high earthen embankment dam and a 33,470-acre-foot impoundment in an unnamed drainage west of Roach Gulch and just south of Greybull River. The water from the project would be used to supplement existing irrigation supplies for use in irrigating crops and idle land. Two alternatives (essentially the same design at different sites) and the no-action alternative were considered. The potential impacts were loss of some grazing areas, loss of plant communities, blocked fish movement, some wetlands impacts, and increased demand for social services (housing, law enforcement, and medical). The preferred alternative would construct and operate the dam and reservoir to deliver irrigation water to the Greybull Valley Irrigation District.

Napa River, California

The Corps of Engineers evaluated a proposed project to provide flood protection by reconnecting the Napa River to its flood plain, creating wetlands throughout the area, maintaining fish and wildlife habitats, and retaining the natural characteristics of the river. The preferred alternative would include dike removal, channel modifications, levees and flood walls, bridge relocations, pump stations, and maintenance of roads and trails. The project would impact fish and wildlife habitat, cultural resources, aesthetics, recreation, transportation, air quality, and noise. Mitigation would reduce almost all of the impacts to insignificant levels. Initial losses in habitat

(riparian, marsh, wetlands) would be offset with additional creation of habitat. The preferred alternative was based on extensive collaboration between local community organizations and the Corps.

Guadalupe River, California

In San Jose, California, the Corps of Engineers evaluated the impacts of controlling flooding along the Guadalupe River. The project would increase the capacity of the river; channel modifications are proposed along eight sections totaling 6.4 miles of the river. Modifications are also proposed for adjacent portions of two tributaries, Ross and Canoas creeks.

Three alternatives were evaluated, including the preferred alternative, an alternative that would minimize vegetation impacts, and a no-action alternative. The Corps prepared a flood-control feasibility study and may fund the preferred project. The impacts of the proposal include soil instability, construction-related sedimentation, possible hazardous-waste exposure during construction, nuisance impacts to residents due to construction, removal of urban forests and vegetation, loss of wildlife habitat, reduction of shaded riverine aquatic habitat, and possible loss of archaeological resources. The preferred alternative would achieve flood protection through channel widening, modifications of levees, and the construction of bypass channels.

Rio Grande, New Mexico and Colorado

The Bureau of Land Management evaluated the environmental impacts of a plan for managing public land and allocating resources along 90 miles of the Rio Grande and some of its tributaries in New Mexico and Colorado.

The plan is unique because it recognized the interdependence of the people, land and natural resources along the northern portion of the Rio Grande in a single, cooperative, coordinated resource planning effort. The alternatives included the no-action alternative, a biodiversity protection alternative, a resource-use alternative, and the preferred alternative. The preferred alternative would provide for management that maintained and enhanced ecosystem health while optimizing recreational opportunities and other resource uses. The impacts of the preferred alternative included some adverse effects to riparian habitat from grazing; decline in water quality as a result of erosion, stream bank destruction, and bacteriological pollution and sedimentation; short-term restriction of grazing; and some localized negative effects to wildlife and fisheries habitat.

Madison and Missouri Rivers, Montana

The Federal Energy Regulatory Commission evaluated the environmental impacts of issuing a new license (relicense) for the Missouri-Madison Hydroelectric Project in Montana. The project consists of nine dams and their associated facilities on sections of the Madison and Missouri rivers in southwest Montana.

The alternatives included the no-action alternative, issuance of a new license, and a new license with alternative operating scenarios and/or environmental measures. The impacts that would occur include changes to land features, geology,

and soils; water quantity and quality; fisheries; vegetation; wildlife; cultural resources; aesthetic resources; recreation and land use; and socioeconomic resources. The alternative recommended by the Agency staff would develop the nine dams with additional measures to protect and enhance the affected environment.

Gauley River , West Virginia

The National Park Service evaluated the environmental impacts of managing the Gauley River National Recreation Area for outdoor recreational opportunities while protecting the natural area.

Four alternatives were considered, ranging from the no-action alternative to maximizing recreational opportunities. The impacts common to all of the alternatives included minor increases in air pollution, construction-related decreases in water quality, some soil compaction, and possible loss of wetlands. The preferred alternative would offer resource-based interpretive programs and would include a visitor information center, exhibits and some facilities.

Ocoee River, Tennessee

The Forest Service evaluated the environmental impacts of developing recreational opportunities within and adjacent to the Upper Ocoee River Corridor area of the Cherokee National Forest. The proposed development would include horse, mountain bike, and hiking trails; improved access to the river; and water access points for private paddling and commercial outfitting and guiding opportunities. Cooperating agencies included the Tennessee Valley Authority and the State of Tennessee.

Five alternatives were considered, ranging from the no-action alternative to maximum development of recreation opportunities (preferred alternative). The impacts associated with the project included increased traffic and use, increased soil erosion and sediment delivery, increased bacterial contamination, and some alteration of terrestrial habitat. The preferred alternative would maximize recreational opportunities by developing multiple use trails, constructing campgrounds, managing water flows, and providing additional access to the river.

Turkey Creek Watershed, Nebraska and Kansas

The Natural Resources Conservation Service evaluated the environmental impacts of a proposal to control flood waters in the Turkey Creek Watershed. The project would reduce sedimentation, enhance fish and wildlife habitat, enhance water quality, improve economic conditions, and provide recreational opportunities.

Six alternatives were considered with differing numbers of dams. Impacts involving the loss of wildlife habitat were associated with the preferred proposals. The preferred alternative would consist of 75 floodwater retarding dams in the watershed.

Las Vegas Wash, Nevada

The Bureau of Reclamation evaluated the environmental impacts of construction and operation of a wetlands park along a 7-mile reach of Las Vegas

Wash in Southeastern Nevada. In addition to creating outdoor recreational opportunities, the park would control erosion in the Las Vegas Valley. The impacts associated with the project include noise, generation of dust, and disruption of habitat due to construction; short-term destruction of wetlands; and disruption of some wildlife habitat. The preferred alternative would emphasize habitat enhancement, recreational facilities, and educational facilities.

PRUDENT SPENDING

In many cases, NEPA works not only to protect the environment, but to save scarce financial resources as well.

For example, when the U.S. Customs Service projected the need for a major expansion of the import lot and docking facility on the Rio Grande near the Juarez/Lincoln International Bridge between the U.S. and Mexico, the General Services Administration (GSA) undertook planning for the project and began preparation of an EIS examining six different ways to build the facilities. GSA also examined a "no-action" alternative, as required by CEQ regulations. The projected costs for building the facilities ranged from $27 million to $54 million. However, time and motion studies conducted for EIS purposes showed that backups at the existing facility resulted from too few inspectors rather than insufficient docks.

Computer modeling for the EIS indicated that, with new facilities already planned or under construction in the vicinity, there would be no need for the facility until sometime after 2020. As a result, the "no-action" alternative was selected and the money was saved.

Often, NEPA represents the best, if not only, opportunity for citizens to directly participate in federal decision making and direct an agency's attention to community concerns.

One such example is the Conway Bypass project in Myrtle Beach, South Carolina. In response to community concerns, the Federal Highway Administration created a wetland mitigation bank through innovative use of the NEPA mitigation process and, working with the South Carolina Department of Transportation, was able to preserve one of the East Coast's most significant ecological reserves. It is worth noting a second result—a $53 million savings in bridge costs. Additional savings are anticipated from the planned future use of the Sandy Island mitigation site in the Carolina Bays Parkway Project and the Mark Clark Expressway project.

This success was also made possible by the coordination, encouraged by NEPA, of several agencies, including the Highway Administration, the Army Corps of Engineers, the Environmental Protection Agency, the Fish and Wildlife Service, the National Marine Fisheries Service, and numerous state agencies.

Many agencies have learned NEPA's value as a planning tool to help define their activities and mission. The Department of Energy, for instance, has made extensive and effective use of programmatic and site-wide NEPA analysis in determining how best to transform its

nuclear weapons complex to appropriate post-Cold war functions and fulfill its environmental clean-up obligations. For example, a NEPA analysis of problems associated with hydrogen generated in underground radioactive waste storage tanks resulted in a modified proposal that saved about $435 million. As Secretary of Energy, Admiral James Watkins initiated a reinvigorated NEPA process at DOE and said it was key to the decision to defer selection of a costly tritium production technology.

"Thank God for NEPA," Admiral Watkins told the House Armed Services Committee in 1992, "because there were so many pressures to make a selection for a technology that might have been forced upon us and that would have been wrong for the country."

NEPA REINVENTION

Over the years, some federal managers have learned to "comply" with NEPA by preparing environmental impact statements that will pass muster with the courts. It is not the intent of NEPA, however, simply to generate paper that meets the letter of the law. Rather, NEPA seeks to encourage fully informed decision making with input from all interested parties. A growing number of agency managers understand the broader goals of the statute. Many agencies are reinventing themselves and have turned to NEPA as a critical planning tool to integrate the concerns and values of communities. If they are successful, NEPA will be a catalyst to alter the manner in which federal agencies operate in these communities.

CEQ recently undertook an assessment of NEPA's implementation, entitled *The National Environmental Policy Act: A Study of its Effectiveness After Twenty-five Years.* The study reflects the analysis and opinions of some of the people who know NEPA best and some who are affected by it most. The study also identified shortcomings in NEPA's implementation. Some participants said that implementation often focused on the narrow goal of producing legally sufficient environmental documents, that the process is lengthy and costly, and that agencies sometimes make decisions before hearing from affected citizens. Other participants noted that NEPA analysis is too technical and the documents are often long. Most thought that more NEPA training is needed at the senior official level as well as at the practitioner level.

Across federal agencies, the study found five factors critical to successful NEPA implementation.

- *Strategic planning*: the extent to which agencies integrate NEPA's goals into their internal planning process at an early stage.
- *Public information and input*: the extent to which an agency provides information to and takes into account the views of the surrounding community and other interested members of the public during its planning and decision-making process.
- *Interagency coordination*: how well and how early agencies share informa-

tion and integrate planning responsibilities with other agencies.

- *An interdisciplinary and place-based approach* to decision-making that focuses the knowledge and values from a variety of sources on a specific place.
- *A science-based* and flexible environmental management approach once projects are approved.

NEPA, like any statute, is not always implemented as effectively as it might be. CEQ's goal is to reinvent NEPA to reduce unnecessary delays, save taxpayer money and promote sensible, cost-effective reform of environmental decision making.

The Reinvention Project

Beyond case-by-case successes, there remains a need for a more systematic effort to enhance NEPA effectiveness throughout the federal government. CEQ calls this effort the NEPA Reinvention Project. It began with an analysis of NEPA implementation, followed by a series of pilot projects applying those findings to agency activities.

Following publication of the effectiveness study, CEQ officially launched its NEPA Reinvention Project. A small core staff was formed at CEQ to coordinate the project and to engage agency personnel in NEPA improvements and emphasize the original purpose of NEPA. The initial focus was planning and decision-making related to federal management of oil and gas resources, grazing, and timber uses on public lands. These topics present especially difficult applications of NEPA procedures and are often the subject of controversy and litigation.

IMPROVED UNDERSTANDING

Through its emphasis on assessing the nature of environmental impacts and predicting likely impacts in the event of a major federal action, NEPA provides a strong incentive for further research and education to advance our understanding of environmental impacts.

Education and Training

For the fifth consecutive year, CEQ and Duke University in 1997 taught "Implementing the National Environmental Policy Act on Federal Lands and Facilities." The course is designed for middle- and senior-level managers. It provides an overview of CEQ regulations and the requirements for public participation requirements, methods and tools for developing alternatives, requirements to address social and economic impacts, the requirements under Executive Order 12898 to address environmental justice, new guidance from the Administration with regard to transboundary impacts and global warming, new and emerging technologies to increase efficiencies in analyses, recent court cases interpreting NEPA and CEQ regulations, and new initiatives of the Administration.

Duke and CEQ are currently exploring the feasibility of adding a social and economic impact analysis, cumulative effects, current and emerging issues, and scoping courses.

Department of Justice Legal Education Institute. CEQ staff participated as

faculty in several training seminars run by the Department of Justice Legal Education Institute. The seminars focused on NEPA's purposes, procedural requirements and the relationship between compliance with NEPA and other laws and policies, such as the Endangered Species Act and Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." Representatives of many federal agencies attended the sessions.

Exploring Complex Effects

In considering proposed actions affecting rivers, it is difficult to assess cumulative effects. These effects extend beyond a particular change, and include the impacts of minor but repeated actions. Some authorities contend that all environmental effects can be seen as cumulative, since almost all systems have already been stressed by humans. While it is difficult to predict and assess even direct effects with a high degree of certainty, learning to assess cumulative effects is essential to sustainable development goals. When sources of change are grouped so closely in time or space that the carrying capacity of a river is exceeded, the result is a diminished quality of life for the area's inhabitants and reduced potential for economic growth along the river. Analyzing for cumulative effects on the full range of resources, ecosystems, and human communities provides a mechanism for addressing sustainable development.

The Council on Environmental Quality recently published *Considering Cumulative Effects Under the National Environmental Policy Act*. While the handbook is not regulatory in nature, it presents practical methods for addressing coincident effects (adverse or beneficial) on specific resources, ecosystems, and human communities of all related activities, not just the proposed action.

The process of analyzing cumulative effects can be thought of as enhancing the traditional components of an environmental impact assessment: (1) scoping, (2) describing the affected environment, and (3) determining the environmental consequences. Generally, it is also critical to incorporate cumulative effects analysis into the development of alternatives for the less detailed environmental assessment, as well as the environmental impact statement. By reevaluating and modifying alternatives in light of projected cumulative effects, adverse consequences can be effectively avoided or minimized. Considering cumulative effects is also essential for developing appropriate mitigation measures and monitoring their effectiveness.

In many ways, scoping is the key to analyzing cumulative effects. It provides the best opportunity for identifying important issues to be addressed, setting the appropriate boundaries for analysis, and identifying past, present and future actions. Scoping allows the environmental analyst to "count what counts." By evaluating resource impact zones and the life cycle of effects rather than projects, the analyst can properly bound the study to capture the cumulative effects. Scoping can also facilitate the interagency cooperation needed to identify agency

Box 2
Principles of Cumulative Effects Analysis for Sustainable Development

- Cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable future actions.
- Cumulative effects are the total effect, including both direct and indirect effects on a given resource, ecosystem, and human community of all actions taken, no matter who takes the action.
- Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and community being affected.
- It is not practical to analyze the cumulative effects of an action on the universe; the analyst must focus on the environmental effects that are truly meaningful for sustainable development.
- Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political and administrative boundaries.
- Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.
- Cumulative effects may last for many years beyond the life of the action that caused the effect.
- Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.

and private sector plans within an ecosystem.

When the analyst describes the affected environment, he or she is setting the environmental baseline and thresholds of environmental change that are important for analyzing cumulative effects. Recently developed indicators of ecological integrity (e.g. index of biotic integrity for fish) and landscape condition (e.g. fragmentation of habitat patches) can be used as benchmarks of accumulated change over time. In addition, remote sensing and geographic information system (GIS) technologies provide improved means to analyze historical change in indicators of the condition of rivers, riverine ecosystems, and human communities, as well as relevant stress factors. Many dispersed local information sources and emerging regional data collection programs are now available to describe the cumulative effects of a proposed action.

Determining the cumulative environmental consequences of an action requires delineating the cause-and-effect relationships between multiple actions and the riverine ecosystems and human communities of concern. Analysts must extract from the complex networks of possible interactions those that substantially affect the river's resources. Then, they must describe the response of the river to this environmental change using modeling, trends analysis, and scenario build-

ing when uncertainties are great. The significance of cumulative effects depends on how they compare with the environmental baseline and relevant resource thresholds (such as regulatory standards or carrying capacity). Most often, the historical context surrounding the river is critical to developing these baselines and thresholds and to supporting both imminent and future decision-making (See Box 2).

Undoubtedly, the consequences of human activities will vary from those that were predicted; therefore monitoring the accuracy of predictions and the success of mitigation measures is critical. Adaptive management provides the opportunity to combine monitoring and implementation in a way that will ensure protection of the environment and the attainment of societal goals. It has the added benefit of advancing the practice of environmental impact analysis into a dynamic management tool, rather than an expensive time-consuming documentation exercise.

OVERSIGHT AND AGENCY IMPLEMENTATION

Federal agencies are required by CEQ regulations to adopt procedures based on the CEQ regulations, and tailored to the regulatory and program activities of the individual agency. Each agency is required to consult with CEQ while developing or revising their procedures and before publishing them for public comment. The NEPA Effectiveness Study has provided new impetus to revise regulations to streamline the process.

Agency NEPA Procedures

In 1996, CEQ reviewed and approved NEPA regulation revisions for the Air Force, Navy, Forest Service, Bureau of Land Management, Department of Energy, and the Food and Drug Administration. Each of the agencies took measures to integrate planning procedures and NEPA, to reduce unnecessary paperwork, and to ensure the public better opportunities to participate in decision -making.

Emergency Alternative Arrangements

CEQ regulations provide for alternative NEPA compliance arrangements in the event an agency needs to take an action with significant environmental effects before completion of an EIS. These provisions are used judiciously and rarely.

In August 1996, a fire in the Cascade Resource Area (managed by the Bureau of Land Management) and the Boise National Forest, both adjacent to the City of Boise, burned over 15,000 acres of federal, state and private lands. Hundreds of homes were threatened, and the fire destroyed brush and grassland on steep and fragile slopes surrounding Boise. The two land management agencies wanted to take immediate action to avert the threat of flooding, mudslides, and debris flows that could threaten human life and property, water quality, and soil productivity. An interagency group, composed of federal, state, and local agencies, recommended contour trenching and terracing not covered by previous NEPA analyses.

CEQ worked with the agencies to develop a process that included extensive prospective public involvement and com-

mitments for monitoring and mitigation, and allowed agencies to proceed with the action immediately. The work has been completed and damage to property and the environment was avoided.

In June 1996, an emergency developed involving extremely high fire risk on public lands in the San Ysidro Mountains in southern California, near the border with Mexico. The Bureau of Land Management (BLM) approached CEQ about alternative arrangements under NEPA for the construction of spur roads within the Otay Wilderness Study Area, along with construction of two helispots on nearby public lands. The high rates of fires in the area presented a severe risk to human life and to sensitive and endangered natural resources. The request was coordinated with the Border Agency Fire Council, a federal and state interagency group brought together to develop a coordinated strategy for the protection of life, property and natural resources in southern San Diego County. CEQ granted the request for alternative arrangements, which included a number of specific requirements for involvement from other federal agencies and consultation with interested non-federal parties.

Referrals

CEQ regulations establish procedures for referring to the CEQ "interagency disagreements concerning proposed major federal actions that might cause unsatisfactory environmental effects." Not later than 25 days after receipt of referral, the CEQ must respond in some manner, such as publishing findings and recommendations. This provision of the regulation is rarely used, but it has been credited with catalyzing resolution of disputes among agencies.

In March 1996, the Federal Energy Regulatory Commission (FERC) proposed two Orders to promote competition in wholesale electricity markets, including Order Number 888, which eliminated discriminatory pricing and opened access to transmission facilities and services. In April 1996, FERC published a final environmental impact statement for this proposed rule and published the rule in final form. On May 13, 1996, the Administrator of the Environmental Protection Agency referred Order Number 888 to CEQ primarily because of their concerns over future potential increases in air pollutants. As part of the formal referral process, CEQ conferred with agencies, states, industry, and non-governmental organizations. In response to the referral, FERC and EPA made important commitments to future actions to protect clean air. On June 14, 1996, CEQ concluded that the referral process and subsequent agency responses had successfully resolved the disagreements between EPA and FERC.

CONCLUSION

In sum, NEPA's relative simplicity provides a dynamism that encourages rethinking as time and circumstances change. On a variety of fronts, that rethinking is taking place, though new initiatives, improved analysis, reinvigorated efforts to encourage public participation, and the continuing challenge of

finding creative solutions that foster both environmental protection, economic growth, and social welfare.

The nation's rivers are the quintessential combination of environmental, economic, and social values. Much of the nation's wealth and many of its major urban centers are located next to rivers. In the nation's long effort to protect water quality, rivers have played a central role.

Throughout the nation, people are engaged in crafting creative new solutions that protect rivers, foster economic growth, and enhance social welfare. These efforts, which are explored in depth in the next six chapters, embody the spirit that prompted NEPA's birth and the intellectual creativity that continue to mark its current application.

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Selected NEPA Cases in 1996

NEPA and Critical Habitat under the Endangered Species Act

In 1995, the Ninth Circuit Court of Appeals, in *Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), held that NEPA does not apply to a decision to designate critical habitat for an endangered or threatened species under the Endangered Species Act (ESA). The court based its holding on the grounds that "(1) Congress intended that the ESA critical habitat procedures displace the NEPA requirements, (2) NEPA does not apply to actions that do not change the physical environment, and (3) to apply NEPA to the ESA would further the purposes of neither statute." 48 F. 3d at 1508.

Catron County v. U.S. Fish & Wildlife, 75 F.3d 1429 (10th Cir. 1996). Contrary to the Ninth Circuit, the Tenth Circuit Court of Appeals, in *Catron County*, concluded that the Secretary must comply with NEPA when designating critical habitat under the ESA. The court disagreed with the Ninth Circuit's earlier conclusion that the procedural requirements of the ESA, with regard to critical habitat designation, displaced the requirements of NEPA, finding instead that the ESA requirements for notice and environmental consideration only partially fulfilled the purposes of NEPA. 75 F.3d at 1437. Citing CEQ regulations, the court stressed that even though an action may be environmentally beneficial, the Secretary is not excused from NEPA's requirements. *Id.*

Those requirements, the court noted, "are not solely designed to inform the Secretary of the environmental consequences of his action. NEPA documentation notifies the public and relevant government officials of the proposed action and its environmental consequences and informs the public that the acting agency has considered those consequences ... To interpret NEPA as merely requiring an assessment of detrimental impacts upon the environment would significantly diminish the act's fundamental purpose - to 'help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. 40 C.F.R. §1500.1(c).'" 75 F.3d at 1437. Therefore, in the court's opinion, meeting the ESA's core purpose by preventing the extinction of species through critical habitat protection, while arguably beneficial, does not completely satisfy the requirements of NEPA; potential detrimental impacts of designation must also be evaluated. *Id.*

From a factual perspective, the court focused on the county's allegations that the proposed designation would prevent continued government flood control efforts, significantly affecting nearby privately owned farms and ranches, as well as public roadways and bridges. *Id*. at 1437- 1438. "These claims," the court stated, "if proved, constitute a significant effect on the environment the impact of which and alternatives to which have not been adequately addressed by ESA." *Id*. at 1438.

Alternatives Analysis

CEQ regulations implementing the procedural provisions of NEPA describe the discussion of alternatives as the "heart" of the environmental impact statement. 40 C.F.R. §1502.14. Agencies are required to "rigorously explore and objectively evaluate all reasonable alternatives" and to "briefly discuss the reasons for their having been eliminated." 40 C.F.R. §1502.14(a). One such alternative that is required in every EIS is the so-called "no action" alternative, which considers the environmental consequences of not undertaking the action at all. When called upon to determine whether an agency has adequately considered alternatives to its proposed action, courts use a "rule of reason," focussing on whether the agency evaluated a reasonable range of potential alternatives. The "rule of reason" reflects the concerns addressed by the "arbitrary and capricious" standard of review, used by courts reviewing agency actions under the Administrative Procedure Act (5 U.S.C. sec. 706(2)(A)). This standard ensures that agency decisions are founded on reasoned evaluations of relevant factors.

Alternatives and the Need to Supplement

Dubois v. U.S. Dept. of Agriculture, 102 F.3d 1273 (1st Cir. 1996). The First Circuit Court of Appeals held that the U.S. Department of Agriculture Forest Service violated the "arbitrary and capricious" standard by failing to explore all reasonable alternatives in an EIS. The Forest Service had approved a special use permit that allowed the Loon Mountain Ski Area to withdraw water from Loon Pond for snowmaking purposes and to discharge water from another river into the pond. During the EIS process, commentors had suggested that the ski area could meet its snowmaking needs by building artificial water storage ponds. The "existence of a viable but unexamined alternative," the court stated, "renders an environmental impact statement inadequate." 102 F.3d at 1287, quoting *Idaho Conservation League v. Mumma*, 956 F.2d 1508 (9th Cir. 1992). The court found that instead of "rigorously exploring" this alternative, the Forest Service failed to address it at all in the final EIS. 102 F.3d at 1288. As the court put it, "the final EIS contains no 'description' or 'discussion' whatsoever as to why an alternative source of water such as an artificially created storage pond would be impractical." *Id*. at 1289.

In addition, the plaintiffs argued that the preferred snowmaking/withdrawal alternative, described above, which

appeared for the first time in the final EIS, included "substantial changes" from any of the alternatives proposed in the prior drafts of the EIS. CEQ regulations require agencies to supplement draft or final EISs if the agency "makes substantial changes in the proposed action that are relevant to environmental concerns." 40 C.F.R. sec. 1502.9. The court agreed with the plaintiffs, saying "These are substantial changes from the previously-discussed alternatives, not mere modifications 'within the spectrum' of those prior alternatives. It would be one thing if the Forest Service had adopted a new alternative that was actually within the range of previously considered alternatives, e.g. simply reducing the scale of every relevant particular. It is quite another thing to adopt a proposal that is configured differently, in which case public commentors might have pointed out, if given the opportunity - and the Forest Service might have seriously considered - wholly new problems posed by the new configurations ..." 102 F.3d at 1292-1293. The court, therefore, concluded that the Forest Service's failure to prepare a supplemental EIS was arbitrary and capricious. *Id*. at 1293.

Alternatives, Viability, and Cumulative Impacts

Seattle Audubon Society v. Moseley, 80 F.3d 1401 (9th Cir. 1996). In 1993, President Clinton established the Forest Ecosystem Management Assessment Team (FEMAT) to examine options and make recommendations regarding a forest management plan to cover federal lands in the Pacific Northwest. FEMAT examined ten alternatives in a single EIS prepared jointly by the Forest Service and the Bureau of Land Management. Alternative nine, the environmentally preferred alternative, provided for only an 80% likelihood that listed species would continue to be viable after the plan was implemented. In this case, the plaintiffs challenged the Forest Service and the BLM's choice of alternative nine on the ground that the agencies did not fully evaluate a reasonable range of alternatives before making their final decision because they failed to consider a "no action" alternative. The Ninth Circuit rejected this argument, noting that the agencies did consider a "no harvest" alternative that was eventually abandoned because it was deemed inconsistent with the need to find a balance between competing uses. 80 F.3d 1404. "Moreover," the court stated, "the federal defendant's consideration of alternative one, which would have protected all old growth timber ... provided a reasonable point of comparison for the other nine alternatives." *Id*.

The court also rejected the plaintiffs' arguments that alternative nine violated the National Forest Management Act's (NFMA) species viability standard and that it failed to address cumulative impacts of actions taken on non-federal land. First, regarding NFMA, the court held that because the federal defendants based their decision on current scientific knowledge, did not overlook any relevant factors, and made no clear errors of judgment, "their interpretation and application of the NFMA's viability regulations

was reasonable." *Id*. Second, the court also upheld the adequacy of the cumulative effects analysis in the EIS, which assumed that non-federal land would be managed to avoid harm to threatened species. In reaching this conclusion, the court relied on the Supreme Court's affirmation, in *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 US 687 (1995) that the Endangered Species Act protects listed species from harm caused by habitat modification or destruction on federal and non-federal land. *Id*. at 1405.

Standing

Committee to Save the Rio Hondo v. Lucero, 120 F.3d 45 (10th Cir. 1996). Taos Ski Valley proposed to amend its special use permit, issued by the Forest Service, to allow for operation of its facilities during the summer. The Forest Service prepared an environmental assessment and a finding of no significant impact for the proposal. Plaintiffs, landowners and users downstream from the ski area, brought suit alleging that the Forest Service had violated NEPA because it failed to do an EIS on the proposal. At the outset, the court recognized that the plaintiffs, in seeking to protect their recreational, aesthetic, and consumptive interests in the land and water affected by the proposal, fell within the zone of interest that NEPA was designed to protect. 102 F.3d at 448.

Next, the court determined whether the plaintiffs met the other basic standing requirements. First, as to injury in fact, the court relied on a two-part test. Under this test, the plaintiff must show that: 1) in making its decision without following NEPA, the agency created an increased risk of environmental harm, and that 2) this increased risk injured the plaintiff's concrete interests. *Id*. at 448. To satisfy the second part of this test, the plaintiff must demonstrate either its geographical nexus to, or actual use of, the site of the agency action. *Id*. The court found that the plaintiffs' averments that the Forest Service's uninformed decision to allow summertime use of the ski area would result in increased water consumption, increased sewage discharge, increased mechanization and development, and overall disturbance of the recreational and aesthetic value of the land in and around the ski area were sufficient to establish that plaintiffs suffered an increased risk of environmental harm. *Id*. at 450. Further, because the plaintiffs actually used the land and water that the Forest Service's uninformed decision had exposed to an increased risk of environmental harm, the plaintiffs had established an injury in fact. *Id*. at 451. Once the court had drawn this conclusion, it had little difficulty finding that the plaintiffs' injury was directly traceable to the Forest Service's failure to comply with NEPA, and that the plaintiffs' injury would be redressed by a court decision requiring the Forest Service to comply with NEPA. *Id*. at 452.

City of Los Angeles v. Department of Agriculture, 950 F. Supp. 1005 (C.D. Cal. 1996). In this case, the Forest Service prepared an EIS for an oil pipeline project that was to cross the Angeles National Forest. In its final EIS, the For-

est Service chose a proposal by Pacific Pipeline Systems, Inc (PPSI) as the environmentally preferred alternative for the project. Southern California Edison Company (Edison), one of PPSI's competitor's, challenged the EIS, alleging that the Forest Service violated NEPA. Specifically, Edison asserted that construction of the PPSI proposal would cause substantial environmental injury to Edison. To determine whether Edison was within the "zone of interest" of NEPA, the court employed a three-part test, requiring Edison to: 1) allege a non-pretextual environmental injury, 2) show that its claim is more than marginally related to, and not inconsistent with, the purposes of NEPA, and 3) be a reliable private attorney general to litigate the issues of the public interest. 950 F. Supp. at 1012. The court concluded that although Edison's environmental injuries were not a mere pretext, Edison's injuries were primarily economic. *Id*. at 1013. "To allow a direct competitor," the court stated, "under the banner of environmental champion, to raise an interminable series of legal challenges . would be 'so marginally related to [and] inconsistent with the purposes implicit in [NEPA]' that it cannot reasonably be assumed that Congress intended to permit Edison's suit." *Id.*, quoting *Clarke v. Securities Industry Assn.*, 479 U.S. 388 (1987). In addition, the court found that Edison's strong economic interest in the litigation would prohibit it from protecting the public interest. *Id.* Consequently, the court held that Edison was not within the "zone of interest" of NEPA and, therefore, did not have standing. *Id*. at 1015.

Timber Salvage Rider

In 1995, Congress passed the Supplemental Appropriations for Disaster Assistance and Rescissions Act (Rescissions Act). Pub.L. No. 104-19, 109 Stat. 194, effective July 27, 1995. Although the Act was primarily an appropriations bill, it contained a rider which, among other things, included provisions for an emergency program to award certain "salvage" timber sales in areas of the nation's forests that had suffered damage due to past fire, drought, and disease. To expedite these salvage timber sales, the Forest Service was deemed exempt from compliance with the requirements of all major environmental laws, including NEPA. Section 2001(k) Pub.L. No. 104-19, 109 Stat. 194. As a substitute, the rider replaced NEPA's procedural requirements with a combined environmental assessment and biological report. Section 2001(c)(1)(A) Pub.L. No. 104-19, 109 Stat. 194. The following cases illustrate the federal court treatment of challenges to salvage sales under the Rescissions Act. The rider expired on December 13, 1996.

Sierra Club v. Forest Service, 93 F.3d 610 (9th Cir. 1996). In this case, the Sierra Club had challenged a salvage timber sale under NEPA, but while the action was pending, Congress passed the Rescissions Act. The sale had already been advertised and offered on the date that the Rescissions Act was passed. The Ninth Circuit held that because the Rescission's Act waived the requirements of NEPA, Section 2001(k) of the Act mandated the release of such sales irrespective of any NEPA violations. 93 F.3d

614. Therefore, because NEPA could not provide any relief, the Sierra Club's challenge was rendered moot. *Id.*

Ozark Chapter/Sierra Club v. Thomas, 924 F. Supp. 103 (E.D. Mo. 1996). The Sierra Club argued that the documentation required by the Rescissions Act salvage timber rider was composed of two separate components: 1) an environmental assessment (EA) under NEPA, and 2) a biological evaluation under the ESA. In this case, the Forest Service decided that the sale fell under a categorical exclusion. The court rejected this argument, concluding that the Act called for a single document providing environmental analysis at the sole discretion of the concerned Secretary and thus the Secretary also had the sole discretion to determine the scope of the evaluation. 924 F. Supp. at 106. Therefore, in the court's opinion, the Secretary of Agriculture's decision to apply a categorical exclusion instead of an EA was appropriate for the sale in question. *Id.*

Cumulative Effects Analysis

CEQ regulations require agencies to consider cumulative impacts, defined as those which result from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. sec. 1508.7. Cumulative impacts can result from actions which are individually minor, but collectively significant. *Id.* When preparing environmental analyses under NEPA, agencies must consider cumulative impacts of actions regardless of what agency or person is responsible for the action. *Id.* When determining whether agencies have adequately addressed cumulative impacts, courts look to the interdependence and interrelatedness of the actions in question.

Inland Empire Public Lands Council v. U.S. Forest Service, 88 F.3d 754 (9th Cir. 1996). The plaintiffs challenged a Forest Service EIS on certain timber sales, arguing that the Forest Service erred by confining its population viability analysis (required by regulations implementing the National Forest Management Act) to the area immediately surrounding the sale, rather than including in the analysis lands "adjacent to" the sale area. The Ninth Circuit rejected the plaintiffs' characterization of the effects on species on these "adjacent" lands as cumulative impacts. The court noted that while cumulative impacts challenges focus on effects of other past, present, and future actions, the plaintiffs in this case were merely challenging the geographic scope of the proposed action. 88 F.3d at 764. Furthermore, the court held that requiring the Forest Service to analyze separately each species to determine the area covered by its particular ecosystem and then analyze its population viability in that area would be impractical. *Id.* The court concluded that the Forest Service was not arbitrary and capricious in ignoring effects on populations of sensitive species living outside the sale area boundaries. *Id.*

Airport Neighborhood Alliance, Inc. v. U.S., 90 F.3d 426 (10th Cir. 1996). Albuquerque International Airport proposed to expand one of its runways. In response, the Federal Aviation Administration

(FAA) prepared an EA on the proposal and issued a finding of no significant impact (FONSI). Plaintiffs challenged the FAA's FONSI on the ground that the EA did not adequately address potential cumulative impacts of the runway expansion. Specifically, plaintiffs argued that because the runway expansion was one of several projects proposed by the airport's Master Plan, the FAA should have addressed the runway expansion in the context of the larger contemplated expansion by the airport. The Tenth Circuit Court of Appeals found no "inextricable nexus" between the runway expansion and the other projects proposed in the Master Plan. *Id*. at 431. In the court's opinion, the expanded runway would have functionality irrespective of the other projects in the Master Plan. *Id*. Therefore, the court concluded, it would be neither unwise nor irrational for the airport to complete the runway expansion, even if it never went ahead with any of the other projects in the Master Plan. *Id*.