

By Lawrence W. Libby

There can be no question about the need for managing natural resources for future enjoyment by people. The overriding theme of this book is that resources and human life are inseparable, if not synonymous—all parts of the same natural ecosystem. There is no reason to assume that the relationship will be any less important in the future. But people have unique capacity to affect the character of the entire ecosystem through deliberate or inadvertent manipulation of its parts. Planning implies thoughtful manipulation sensitive to human needs as well as to natural limits.

Significant natural resource planning activities are underway in the 1980's. They are expressions of a collective commitment to acknowledge future claims on resources. All resource-using actions taken today will affect the opportunities available to future users. Planning and management programs are simply designed to guide those actions in ways that are sensitive to the future.

Resource and commodity markets can do much of the management job. That is, buyers and sellers are people with their own perceptions of future needs and present values.

There is no particular reason to assume that governments are more perceptive than people (if such a distinction can be drawn). The role of government is to help people enjoy resource services that simply cannot be bought and sold, and to be more

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cautious with our resource endowment than individuals might be. Government can help us avoid the unfortunate consequences of protecting fewer resource options for the future than we need for survival.

Resource management programs discussed here focus on soil and water resources of the Nation, and the forests. Both sets of resources have highly developed markets for the commodities they produce. Government programs are directed at side effects of private use (erosion, water pollution), and provision of certain resource services (such as wilderness) that aren't provided otherwise.

These public programs are comprehensive management systems, geared to the mix of resource services involved and a broad range of judgments as to how the resources should be used. They are designed to influence private use of resources in ways sensitive to future needs.

### **Accountability Era**

National programs for conserving soil and water resources of the United States have existed for over 50 years. They began after the Dust Bowl days when the need for action was most apparent. The productivity of American agriculture was dramatically redistributed, blowing in great clouds from the heartland to the steps of the Capitol in Washington.

Response to this clear emergency produced a national soil conservation program that has

matured into a formidable political and social movement. Soil conservation is a *cause* as well as a program. The diffuse system for delivering technical and financial assistance from the Federal Government to farmers has produced a political network that helps sustain conservation programs in the 1980's.

But the late 1970's and 1980's are an era of accountability in government. Soil conservation, the retention of soil productivity longer than might occur in the absence of public action, has to be weighed against other social "goods," like improved highways and rebuilding cities. This has always been the case, of course, but soil protection, public forest management and several other natural resource programs where the commodities are not easily measured had escaped detailed scrutiny in the past.

In 1976 the General Accounting Office (GAO) in Washington questioned the payoff from more than \$20 billion spent on soil conservation programs. GAO was particularly skeptical that the "cafeteria approach" of offering assistance to all who requested it was the most effective way to reduce erosion.

An oversight letter from the Senate Committee on Agriculture, Nutrition and Forestry directed the Soil Conservation Service (SCS) and Agricultural Stabilization and Conservation Service (ASCS) to present data on the physical and economic performance of programs and techniques for reducing erosion.

SCS and ASCS responded, but discovered that their data system for answering these accountability questions was hopelessly inadequate.

### **The RCA Program**

The soil conservation political "power cluster" in Washington responded to this general pressure for a more efficient soil conservation effort by drafting the Soil and Water Resources Conservation Act (RCA). It became law in 1977.

Scope of RCA is enormous—calling for an appraisal of all the non-Federal land and water resources of the Nation, analysis of existing programs for getting conservation practices on the land, and making periodic recommendations to Congress and the President as to how the job might be done better.

As of mid-1983 the RCA system has gone through the first cycle. Several volumes have been published describing soil and water resources of the Nation (including historical trends), identifying major uses, and projecting resource needs in the context of world food demands. Existing Federal, State and local laws directed at soil and water conservation were identified, and in September 1982 proposals for improving the delivery system for conservation techniques were presented to Congress and the President.

The RCA can produce a truly dramatic change in the process by which soil and water decisions are made throughout the



country. But the potential of this resource planning and management system has to confront the cold reality of U.S. policymaking. Since any change implies realignment of rights, opportunities and obligations of relevant actors, major policy changes inevitably come in small steps. That is the inherent strength and perhaps the greatest source of frustration in our pluralistic form of government.



RCA has its critics, to be sure. Some feel it is doing too much, others too little, and others question how the process functions. But planning systems that must cope with a broad range of political definitions of good and bad are seldom very precise. Even when the planning unit can act on perceived preferences, as with public land management (discussed below), progress is intermittent.

*Fifty years ago, the Nation saw its topsoil blow from the heartland to the steps of the Capitol in Washington. The days of the*

*Dust Bowl brought the beginning of national programs for conserving soil and water resources in the United States.*

## **2-Part Appraisal**

A balanced appraisal of RCA as an emerging system for guiding public investment in the soil conservation actions by farmers must consider both the *process* and *product* results of that system. Both will affect policy performance over time. First, the process aspects of RCA:

One of the first steps undertaken to implement RCA within the U.S. Department of Agriculture (USDA) was creation of a system of structured interaction among the eight agencies with direct responsibility for implementing any of the 34 resource conservation programs. For the first time, literally, agencies of USDA focused on the "so what" of a myriad of special purpose programs in a reasonably coordinated and systematic way. The U.S. Office of Management and Budget and USDA program, budget and evaluation staff were involved as well.

With RCA as the stimulus, a small group of analysts and policy specialists roughed out an analytical scheme to appraise the performance of existing conservation programs in terms of projected crop production needs and, more importantly, to compare alternative institutional approaches to achieve conservation goals at lower cost.

The process was not neat and tidy, despite all the flow charts and diagrams that evolved. The potential stakes for each agency and subagency were substantial.

Bargaining became more intense as boundaries of the political "turf" became clarified.

With the benefit of hindsight, many have criticized the early days of RCA. To say the final product of that interaction was something less than a textbook quality analytical system for soil and water conservation policy is an understatement. It is also largely beside the point.

## **Reoriented to Results**

RCA literally forced the agencies to reorganize their thinking toward results rather than activity, outputs rather than inputs. It created a mechanism for communication, even bargaining, on the substance of conservation policy. It created new demands for analytical talent within the agencies—people who could organize information and data in ways that highlight choices. RCA changed the way we think about future soil and water actions.

*If RCA is taken as seriously in the future as it was in the beginning, soil and water management for future needs will continue to improve. Continued coordination among those Federal agencies whose actions directly influence use of soil and water is essential. We must not let the agencies slip back into the more comfortable posture of counting paper clips and guarding "turf."*

There were other process changes as well. RCA has broadened the agenda for soil conservation programs. More policy options are discussed now than ever before. Emphasis is on en-

couraging farmer actions that are sensitive to the broader social stake in future soil quality.

The agenda has been stretched in three directions. *First*, purposes other than protecting on-farm soil productivity have been added to the discussion. Erosion causes water pollution, affects wildlife habitat, influences water supply available for various uses. Soil conservation efforts provide a full list of services beyond keeping productive soil in place for the farmer. Acknowledging this list can produce a different conservation program.

*Secondly*, RCA has broadened the political base for soil and water conservation. More people and interest groups are aware of soil conservation as a national objective than ever before. Groups like the National Audubon Society, Natural Resources Defense Council, and Sierra Club have taken active positions on soil conservation issues.

Broadening the political constituency is a deliberate part of RCA. The law says that resource issues will be reviewed with "conservation districts, state soil and water agencies, and other appropriate citizens groups. . . to assure public participation."

### **Consensus Problem**

Any time the diversity of those seeking response from a particular political process is increased, the problem of reaching consensus is increased as well. The soil conservation constituency is less definable or predictable

than was the case pre-RCA. Partly it is a response to the broader agenda—more groups see they have a stake. Some are more concerned about the wild-life habitat implications of conservation; others stand to gain from construction of traditional conservation structures. This broader constituency means a more volatile political environment for the future.

A further aspect of this broader constituency has been greater attention by professions and academic disciplines other than soil science and agricultural engineering. Academics know a good bet when they see it, too.

Sessions on soil conservation have been held at annual meetings for sociologists, political scientists, biologists, systems scientists, ecologists, even economists. There have been more papers written, studies undertaken, seminars held. A real intellectual investment has been made in the substance and implications of managing soil and water resources for future needs. This is important.

The *third* dimension of the widening conservation agenda concerns growing awareness of impacts of other agricultural programs on soil-conserving behavior by farmers. We know that farmers respond to the realistic choices they face in remaining economically viable while protecting land quality. Some of those choices for farmers are influenced by agricultural programs. Some have observed an



*Erosion not only decreases soil productiv-*

*ity, it is a major cause of water pollution.*

Tim McCabe

unintended, yet real, incentive to abuse the land built into various commodity and tax programs for farmers.

RCA has had a profound and lasting effect on conservation policy, beyond any tangible products of that policy. It has irretrievably altered the political setting and hopefully the agency process for considering a policy agenda.

### **Evidence of Impact**

The products of RCA have already been mentioned. Their importance should not be misunderstood. They provide a valuable and definitive reference on soil and water resources of the Nation, including physical dimensions of the erosion problem. Subsequent versions may focus more specifically on high erosion areas.

Information needs to support policy recommendations help the agencies organize data and identify data gaps. The Soil Conservation Service has outlined its major resource needs as a result of the RCA process.

Identification of the broad policy options—including special tax incentives, limited regulation, mandatory or bonus cross compliance between conservation and commodity programs, variable cost-sharing—has led to pilot testing of these options throughout the country. Performance-oriented data systems have replaced the simple tabulation of miles of diversion ditch,

numbers of cooperators or acres planned that had existed pre-RCA. We have the prospect of future soil conservation programs based on defensible evidence of impact.

### **Iowa State Base**

The rough scheme for organizing RCA in the early days of implementation has led to a rigorous and sophisticated analytical framework to support policy development. The system, based at the Center for Agricultural and Rural Development at Iowa State University, involves the linking of a multiregion linear programming model with models of the impacts of erosion on plant growth and productivity.

The L-P model is not unique to RCA; earlier versions were used for the National Water Assessment. But the early RCA brainstorming on what would be needed for a truly comprehensive performance-oriented soil conservation program provides the needed intellectual underpinning for the formal models.

Utility of the models is still being examined. They must be useful, understandable and adaptable. Each iteration of the RCA process will produce an improved analytical system.

These are some of the products of RCA. They represent greater capacity to understand the implications of policy choices for soil and water management. The capacity for enlightened choice is apparent. The *will* requires constant attention.

### **Forests, Range**

Another example of a planning and management system for future resource needs involves the federally owned forests and rangeland of the Nation.

A resource planning and management system similar to that being established under RCA is in place and functioning under the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA). It preceded and in fact was the model for RCA.

It calls for an "analysis of existing and anticipated uses, demand for and supply of renewable resources. . .supply, demand and price trends, an inventory of present and potential forest resources and an evaluation of opportunities for improving their yield of tangible and intangible goods and services." This part applies to all 1.7 billion acres of forest and rangeland, both public and private.

Promising forest investment opportunities are to be identified. Output targets for each forest commodity or service are assigned to the producing regions, as appropriate.

The law also requires preparation of a suggested program for the President on the protection, management and development of the National Forest System. Everything the Forest Service does is supposed to relate directly to this long-range plan. All personnel actions are tied in. Both the assessment and program are to be updated periodically.

As with RCA, the RPA system is intended to inject thoughtful and coherent planning and management into the policy process affecting the use of all forests and rangeland. Emphasis is on national forests, where government, primarily the U.S. Forest Service, has sufficient leverage to actually implement appropriate management schemes.

### **Priorities Established**

The RPA process helps Congress and the agencies establish priorities for budgeting. It improves the chances that management actions will be taken with some knowledge of their consequences. Investments in each of several forest resource systems (such as timber, recreation, fish and wildlife habitat) are analyzed for their qualitative and quantitative impacts on the other systems.

The uninitiated outside observer might assume that such a basis for choice had always existed in Washington. Otherwise, how would we know what we (the taxpayers) are buying for money spent on the national forests? Good question. The previous system had relied primarily on the judgment of professionals in each national forest with some guidance from regional and national administrators.

Since the broad range of services available from national forests were well known by highly trained forest supervisors, the inevitable tendency was to get a little bit of every service in every

forest. The internal reward system of the Forest Service placed particular emphasis on timber production, the "guts" of forestry. Thus every forest supervisor wanted a strong timber management program.

Legislative guidance for the mix of outputs was incomplete—the 1897 Organic Act refers to harvesting only "dead or diseased trees." Even the Multiple Use-Sustained Yield Act dealt with physical production potential rather than economic criteria. Thus the RPA came along as part of the growing demand for accountability in resource policy to meet future needs.

### **Harvest Criterion**

Another national law added specificity to the economic part of forest management. The National Forest Management Act of 1976—an amendment to RPA—establishes the basic rule (among others) that timber should return in revenue at least what it costs to prepare it for sale. That criterion leaves many acres, even whole forests, out of the timber business.

There is just no logic in harvesting trees for sale in areas that are generally inaccessible or unproductive. All of the cable and helicopter harvesting techniques make exciting training films, but seldom make economic sense.

RPA/NFMA are geared toward comparative advantage forestry. Some areas clearly offer wilderness experience at lowest possible cost, while other national

forests are good for timber production. Targeting management funds where they will have the best payoff improves efficiency of the whole system.

Interestingly, both wilderness groups and timber groups applaud this emphasis on comparative advantage forestry. Both see their present and future interests best served by a management system that acknowledges comparative advantage.

### **RPA Limitations**

The RPA System has significant potential. But there are limitations as well. Many of these are relevant for any such effort to systematically plan for current and future use of a natural resource. As noted, our political system is seldom as precise as the resource planners might like.

First the limitations: The RPA program is really a budget document. It builds the case to meet certain resource needs identified in the assessment. Yet any budget document, even one built on all that analysis, is just the beginning point for negotiation. It is a political document, representing the biases and judgments of the current administration. No matter how sophisticated, the document will not replace politics. The RCA program is less a budget than is the RPA—just by the nature of the management decisions to be influenced.

The RPA process may impose some internal stress on the Forest Service, as well. It challenges

the existing distribution of power that has evolved over the years. RPA has enormous needs for analytical skills. It creates a new elite, with more emphasis on formal training than years of experience. These stresses and strains will of course be worked out over time.

RPA implies substitution of rules for judgment. The Forest Service has had an enviable record for sensitive professional management "on the ground," where the resources and people are. Shifting the emphasis to computers and procedures instead of human judgment is unfortunate, according to some observers. Decisions appear to be mechanistic rather than thoughtful. Linear programming may obscure rather than elucidate.

Still, attributing so drastic an impact to RPA overstates the real strength of new procedures. People will still be involved, though the system will be more centralized. Any system to re-allocate resources based on regional or forest comparative advantage is bound to draw more discretion and power back to the source of the analysis—in this case, Washington, D.C.

### **Data Problem**

Another perceived limitation of RPA is the data problem. Some forest outputs are more easily measured than others. Clearly, the market for forest commodities and services of the National Forest System cannot do the whole job. In fact, the reason for

public forests is that some forest services cannot be marketed, yet are desired by a major sector of the population.

Crossover impacts—effect of timber harvest on elk or deer habitat, or effect of oil extraction on quality of the wilderness experience—will be particularly hard to measure. Some forest policy specialists feel that the attempt to force quantification on the more ephemeral qualities of the forest environment may actually give these fuzzier services an advantage in comparison with marketed services. They may become numerical constraints on timber outputs, for example.

Any analytical system is only as good as the people who run it and the institutions within which they must operate.

### **Strengths of RPA**

There are significant strengths to RPA, however, and I believe the balance is positive. It represents a deliberate effort to organize information for choice in a way that the consequences of those actions can be apparent.

RPA can sharpen the terms of debate, so those arguing for more wilderness or more timber can have some idea of the impact involved. It is the best hope for considering future forest needs without the sloppiness of program-by-program bickering. RPA also has the potential for relating national forests to state, local and private forests. At least the information system is established.

**Conclusions.** RPA and RCA are the two most prominent examples of comprehensive resource planning. Several states have followed RPA with forest management systems of their own.

The accountability theme in resource policy simply will not go away. The "missionary" aspect of protecting soil and forests is important, but when it costs public money the taxpayers want to feel they are getting the most good for their dollars.

Both RCA and RPA have opened the political process for these resources. Soil conservation used to be a well-defined compact set of political groups. Greater visibility can mean greater support. It can also mean higher expectations from the resources involved.

There is likely to be a trend in policy toward shifting greater social responsibility onto the resource owner. Part of the greater

political awareness is the expectation that private owners or users will take the needs of others into account.

There may be pressure for more mandatory controls on erosion, forest harvest, or land conversion from agriculture to other uses. Yet mandatory measures are not always the most effective. These institutional options must be analyzed.

Computers are very much a part of these and future resource management systems. They facilitate rapid manipulation and storage of huge quantities of data. No amount of hand-wringing about replacing people with computers will alter that fact.

The systems will become more elaborate. But as the first round of RCA demonstrated, sometimes our technology outruns wisdom. That process generated far more printouts than anyone could read. Judgment still has a role.

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### Further Reading

Batie, Sandra S. *Soil Erosion: Crisis In America's Croplands?* The Conservation Foundation, 1717 Massachusetts Avenue N.W., Suite 30. Washington, D.C. 20036. \$8.50.

Halcrow, Harold G., Heady, E.O., and Cotner, M., eds. *Soil Conservation Policies, Institutions and Incentives.* Soil Conservation Society of America, 7515 Northeast Ankeny Road, Ankeny, Iowa 50201. \$6.

Robinson, Glen. O. *The Forest Service: A Study in Public Land*

*Management.* Johns Hopkins University Press, Charles and 34th Streets, Baltimore, Md. 21218. \$26.50.

Sampson, R. Neil. *Farmland or Wasteland: A Time to Choose.* Rodale Press, 33 East Minor Street, Emmaus, Penna. 18049. \$16.95.

Stairs, Gerald R., and Hamilton, T.E. *The RCA Process: Moving Along the Learning Curve.* Duke University, Mayna Dragdn, Rm 214, Bio. Sci., Durham, N.C. 27706. \$6.



