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Planning, Policy, and Administration

ELEMENTS OF ORGANIZATIONAL FUNCTION

Managing Problems and Opportunities

Chances are you have already encountered a problem today that you somehow managed through planning and action. In our daily routines we encounter many small problems that we either solve quickly, set aside, or ignore. Sleeping too late, for example, requires problem identification (I could be late!), searching for solutions (What choices do I have?), choosing a solution (skipping breakfast or making up an excuse), applying the solution (going hungry), and evaluating the result (Was I on time?). These are the basic elements in all planning and implementation of solutions to problems (Figure 5.1).

In identifying the problem and taking stock, we often forecast conditions and consequences (What if the traffic is bad?). In determining a course of action, we usually weigh alternatives available to us and pick the best one for our circumstances (skip shower, breakfast, or dog walking). A thorough evaluation may lead to rethinking how we wake ourselves up. This could lead to a new personal policy—a procedural rule—for a new wake-up routine (set two alarm clocks). Permanent adjustments of our personal affairs will probably require careful administration (i.e., facilitating more effective activities).

Organizational Integration

Planning, policy, and administration are complementary elements in problem identification and management and are essential for integrating organization functions to achieve desired results (Figure 5.2). Natural resource management organizations have to identify problems and the means for solving them before acting and evaluating the results. This is true for any natural resource organization, whether local, state, or federal agency; for-profit business; environmental advocacy group; educational or research institution; or other type of nongovernment organization (NGO). The care taken in this integrated process of planning and plan implementation can greatly improve management effectiveness. Management can be defined simply as the effective

CHAPTER 5 ■ Planning, Policy, and Administration

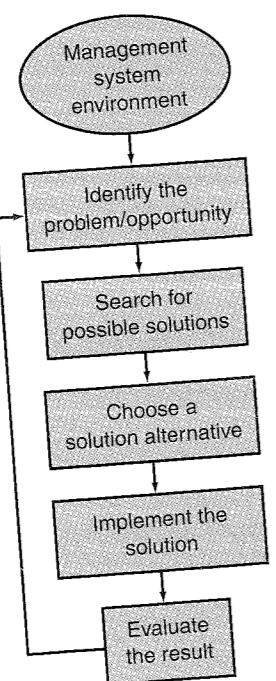


FIGURE 5.1 The basic elements of management: problem and opportunity identification, analyzing for resolution, implementation, choosing an alternative, and evaluation.

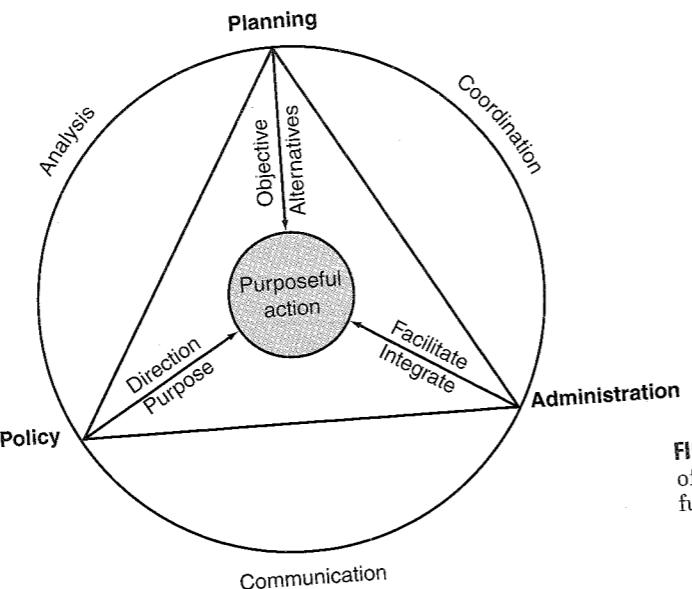


FIGURE 5.2 Components of effective management functioning by organizations.

implementation of plans. Planning is the process of identifying problems or issues and their possible solutions, then mapping out actions and evaluating results. Policy is guidance developed by an organization to carry out plans. Administration facilitates coordination of actions into an organizational integrity that serves a purpose held in common by all members of the organization.

Planning, policy, and administration determine organizational effectiveness in accomplishing purpose from the natural, human, and technical resources on hand. All members of organizations have roles and stakes in the outcome from organizational effort. Organizational achievement follows from the coordinated achievement of individuals. While styles of management are diverse, all organizations need to coordinate the planning and actions of individual members into an effective organizational integrity if they are to efficiently solve their problems and take advantage of

important opportunities. An important function of administration is to identify coordination needs for management planning and plan implementation.

Contemporary natural resources management concepts have roots in science and its applications. Management starts with identification of problems, establishes scientific alternatives for problem solution, and analysis for the most cost-effective solution. Planning and policy analyses parallel the scientific method, which emphasizes testing of alternatives (hypotheses), evaluating results, drawing conclusions, and integrating them into scientific knowledge. *Adaptive management* is an approach to natural resource management that promotes continuous scientific evaluation of management effectiveness and continual adaptation of management to conditions as new knowledge is gained (Walters 1986).

Excellent communication skills are a prerequisite to linking personal planning with others in an organizational planning process. The need for strong communication skills grows as the complexity of organizational tasks grows and involves more people. In such situations, the planning process often becomes a more public and formal organizational effort to keep management from dissolving into disarray or chaos. Effective organizational planning integrates personal planning into a coherent institutional process directed toward accomplishing organizational purpose.

MANAGEMENT SYSTEMS

Organizations as Management Systems

Each organization forms a planning and implementation system that interacts with other management systems in environments held in common and around purposes of mutual interest (Lorange and Vancil 1977). Management systems also overlap and interact with ecosystems and economic systems to redirect their processes toward planned outputs and outcomes (Figure 5.3). While many specific approaches are taken to management, the same four basic elements of a planning and implementation cycle are common to all effective management systems (Figure 5.4): (1) inventorying the planning environment; (2) focusing management intents through mission, goals, and objectives; (3) allocating organizational resources to appropriate operations (implementation); and (4) evaluating outcomes (Lorange and Vancil 1977, Crowe 1983, Koteen 1989). Planning requires an *inventory* of existing conditions in the management environment, including the resources at hand to do the job and those stakeholders who will be affected by it. Inventory often includes *forecasting* future events, based on trend analysis or other information, and developing different

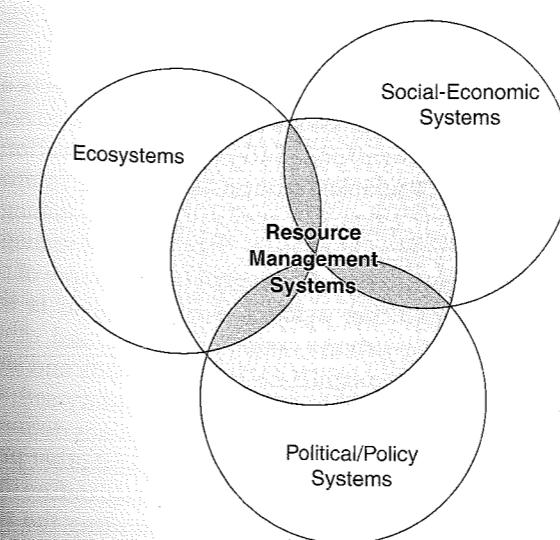


FIGURE 5.3 The basic components of natural resource management systems.

CHAPTER 5 ■ Planning, Policy, and Administration

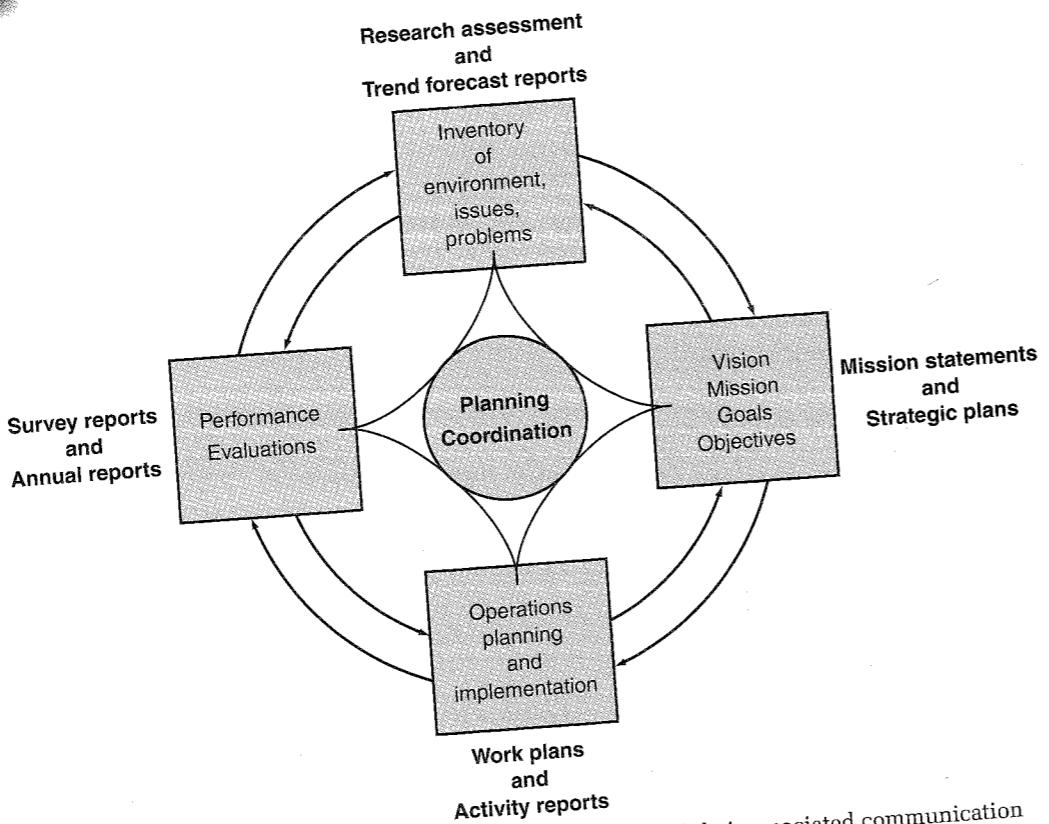


FIGURE 5.4 Basic planning elements of effective management and their associated communication products. While the process of planning and implementation progresses forward through inventory, objective setting, operations, and evaluation, there is learning feedback at each step in the process. Each step generates communication designed to facilitate the management process.

plans for a series of possible future conditions. Planning focuses on transforming a vision of future desirable conditions through statements of mission and goals into specific objectives and the strategies and tactics used for their accomplishment. Operations are designed to accomplish the objectives that will realize the vision. Performance evaluation is needed to judge progress made toward realization of the desired future condition. Performance evaluation provides new information for modifying the inventory and the planning process that follows. In this way, the planning process cycles refined and improved information for organization adaption to a changing planning environment.

Management System Boundaries. Unique natural resource management systems exist for diverse organizations including private businesses, advocacy groups, government, and any other type or combination of organizations. Fully stated organizational authorities and purposes usually establish boundaries around the unique internal management environment of the organization (Figure 5.5), which forms the management domain within each organization's management system. The external management environment lies outside the organizational boundaries and is the source of resource materials, information, financing, and other system inputs. It also is the destination for management influences on ecosystems, social systems, and other management systems. These management-system outputs include all goods and services affecting the general welfare outside the organization. Basic boundary-setting authorities and responsibilities are determined by law, such as the purposes defined for agencies and the right to private property so important to business and other private organizations. The management mandates, mission, and goals usually define the resources of concern to the organization, the actions to be taken regarding the re-

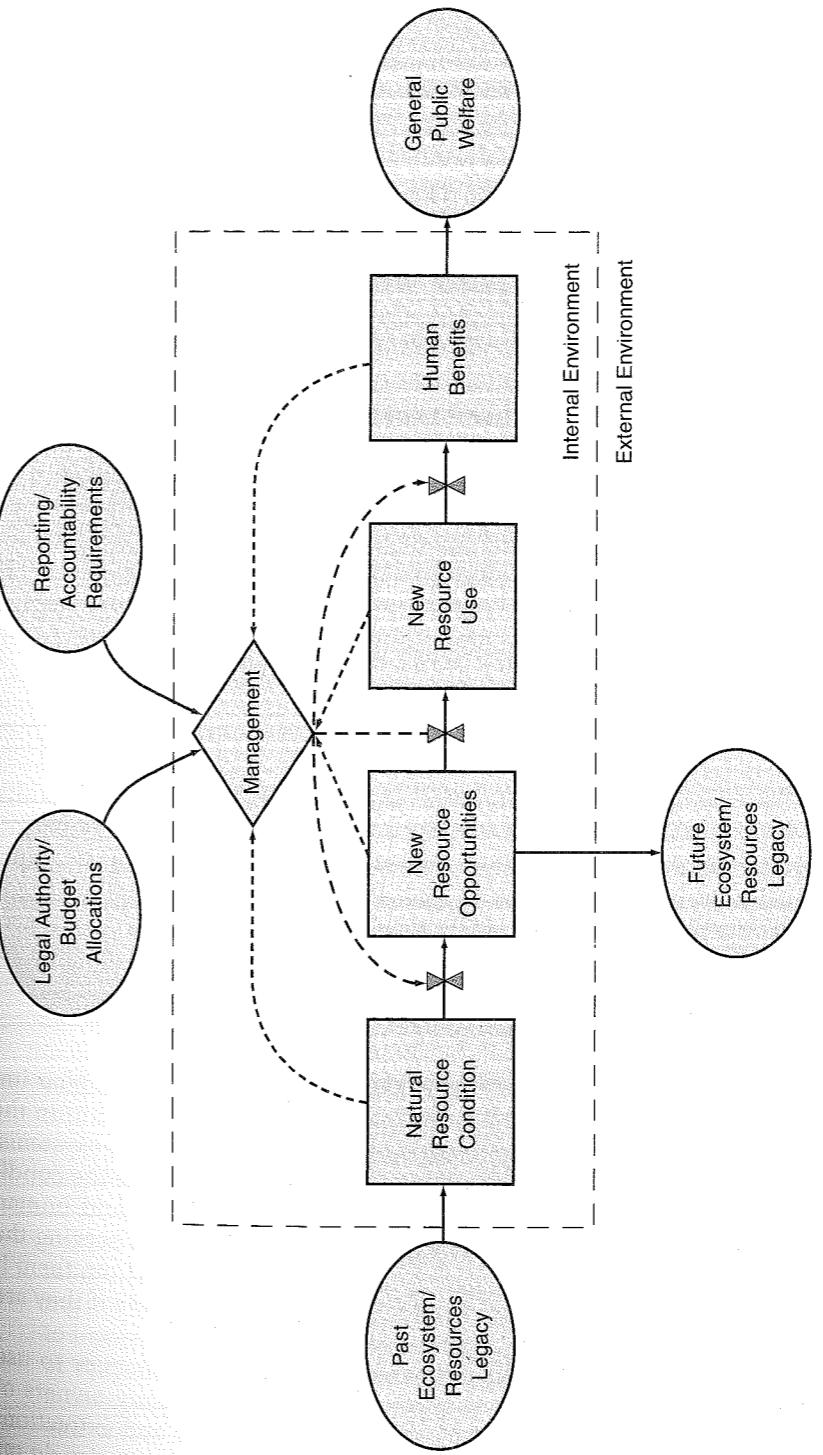


FIGURE 5.5 The management system. Management "drives" a process of assessing resource condition and developing new resource opportunities based on expected resource use and human benefits. Factors in the external environment provide ecological and social inputs that enable management system function. System outputs affect the future condition of the ecosystem and resources as well as general public welfare.

CHAPTER 5 ■ Planning, Policy, and Administration

132

sources, and the geographic area to be developed, regulated, or otherwise influenced by the organization.

The U.S. Forest Service, for example, is bounded by its legal authority to manage all national forest natural resources according to legally authorized policies. Within the geographical limits of its authority, the Forest Service has a multipurpose management authority over grazing, timber, recreation, biodiversity, watershed, and other resources. In contrast, the U.S. Environmental Protection Agency (EPA) is primarily authorized to prevent environmental degradation through enforcement of regulatory policy applied throughout all of the United States. Whereas it is a single-purpose organization, limited to environmental protection, the authority of the EPA is geographically unlimited within the United States. The U.S. Fish and Wildlife Service has a more complex authority including management jurisdiction over an extensive refuge system, regulatory enforcement of numerous federal fish and wildlife laws, and administration of funding to states gained through federal taxation on fishing and hunting equipment and supplies. State, county, and municipal agencies have no jurisdiction beyond their political boundaries, but otherwise are similar to federal agencies in the way their management systems are bounded.

A private organization holding land is authorized through recognition of private property rights to manage the ecosystem associated with that property within legal constraints imposed by government. In the United States, for example, a private land holder cannot, without a state permit, manage or harm the wildlife on the land, because the wildlife are a public resource. Compared to government agencies, the boundaries of private organizations usually are determined more by the mission and goals circumscribed by the organization than by law. In contrast, the flow of goods and services across government agency boundaries, and human access to them, is governed by law, starting with the U.S. Constitution. The difference between private and public service flow is well illustrated by recreational beaches. While private owners have a right to close their beaches to public access, a recent Connecticut Supreme Court decision confirmed that a city-owned beach cannot be legally closed to nonresidents.

Natural resource management is often based in geographically identified units, regardless of whether an organization is authorized control over land through private ownership or through the public trust. Organizational functions vary with geographical area as resources and human preferences vary from one region to another. Many natural resource management systems classify resources through some kind of geographically based reference system. Management units are often split up on a regional basis, and management plans often define the boundaries of each separate area to be affected by management and to what degree.

The Internal Management Environment. Management planning as well as plan implementation is the driving force (symbolized by the diamond in Figure 5.5) in the system, which operates on the natural resource condition of the relevant ecosystems. The organization mobilizes its human resources and facilities to enhance the condition of natural resources and provide improved opportunities for use and human benefit. Whether private or public, managers operate with the intent of serving the interests of people who use the provided opportunities, either to profit from them if they are private businesses or to benefit them according to legal mandate if they are government agencies.

Private businesses may manage natural resources to sell to customers or to use themselves in manufacture of refined products that are then sold. Many owners of timber, minerals, fossil-fuels, and other resources open them to sale and extraction, much as the Forest Service, Bureau of Land Management, and other agencies do on public lands. Other private land owners extract resources, such as timber, and then use these resources to produce refined products, such as lumber and furniture. Private businesses compete in the market for customers and in so doing are driven to benefit the customers while they too benefit through continued employment and profit.

Opportunities may be provided in a diversity of ways other than increasing the production level and sustainability of goods and services from the natural resources. Providing more access often is a critical element in providing opportunity to use resources such as by way of roads, boat ramps, improved navigation channels, trails, railroads, and airports. Provision of facilitative services can be important, such as providing power, fuel, food services, housing alternatives, and a diverse array of other wants and needs. Management effectiveness in facilitating resource use and in benefiting customers often depends on how well a mix of opportunities is provided.

Government agencies are mandated through their authorizing laws to serve resource-user "customers." A state game and fish agency, for example, provides opportunities for recreational anglers, hunters, and wildlife watchers, all of whom are customers of the agency's services. However, government agencies often find it more difficult than private businesses to determine exactly who the customer is because the resource is "owned" by all of the public, not just those who actively use it. When the Forest Service sells timber the purchasing logging company may momentarily stand out as a customer, but all of the taxpaying public are also customers affected by the government income generated from the sale (reducing fees and taxes), the cheaper price of wood resulting from greater supply, and any environmental costs associated with the sale. Because of their public mandates, government agencies must serve all of the public well while private businesses can specialize or diversify more as they choose within broader regulatory limits.

The External Management Environment. No management system is totally independent of other management systems and thus is influenced by and influences ecosystems and socioeconomic systems in the external environment. Each management system depends on inputs from outside the system and, in turn, each management system's outputs contribute to the inputs of other systems beyond their boundaries. For natural resource management systems, most of the more influential inputs and outputs are ecological and economic.

The ecosystem condition "inherited" by an agency or firm determines the initial resource condition, economic demand for resource use, and cost of management. Past natural and management history and the location of the ecosystem with respect to human demands and impacts are critical factors. Ecological influences outside their management domain often influence their management system. No where is this more evident than in water resource management. An agency or firm situated high in the watershed has a much different ecosystem perspective than management systems located lower in the watershed in large rivers or estuaries. Upper-watershed agencies are more concerned about output impacts than about changes in inputs from external sources. Lower-watershed management organizations need to be concerned with all of the waterborne inputs that can have a major impact on the manageability of their authorized systems. Similar kinds of connecting flows among the jurisdictions of management systems occur along plant and animal dispersal routes, animal migration routes, coastal and oceanic currents, and prevailing winds.

Thus, some of the more vexing resource problems in recent years pertain to large animal migration and dispersal from public to private lands, downwind acid rain fallout across state and international borders, international incongruities in managing migratory fish and birds, and progressive water quality deterioration from upper-to lower-watershed ecosystems (Figure 5.6). Simply documenting the characteristics of material flows (e.g., water, contaminants, migrating animals) between management systems is basic to solving some of the related management problems. Poor land and water management often results in the system-output of materials that become system-input problems somewhere else, such as sediments in streams and lakes and atmospheric pollutants. The net effect is lowered total public welfare requiring government correction. The import-export connections between management systems are often the focus of mediating regulation administered by an overlying management system. The Environmental Protection Agency, U.S. Fish and Wildlife Service,

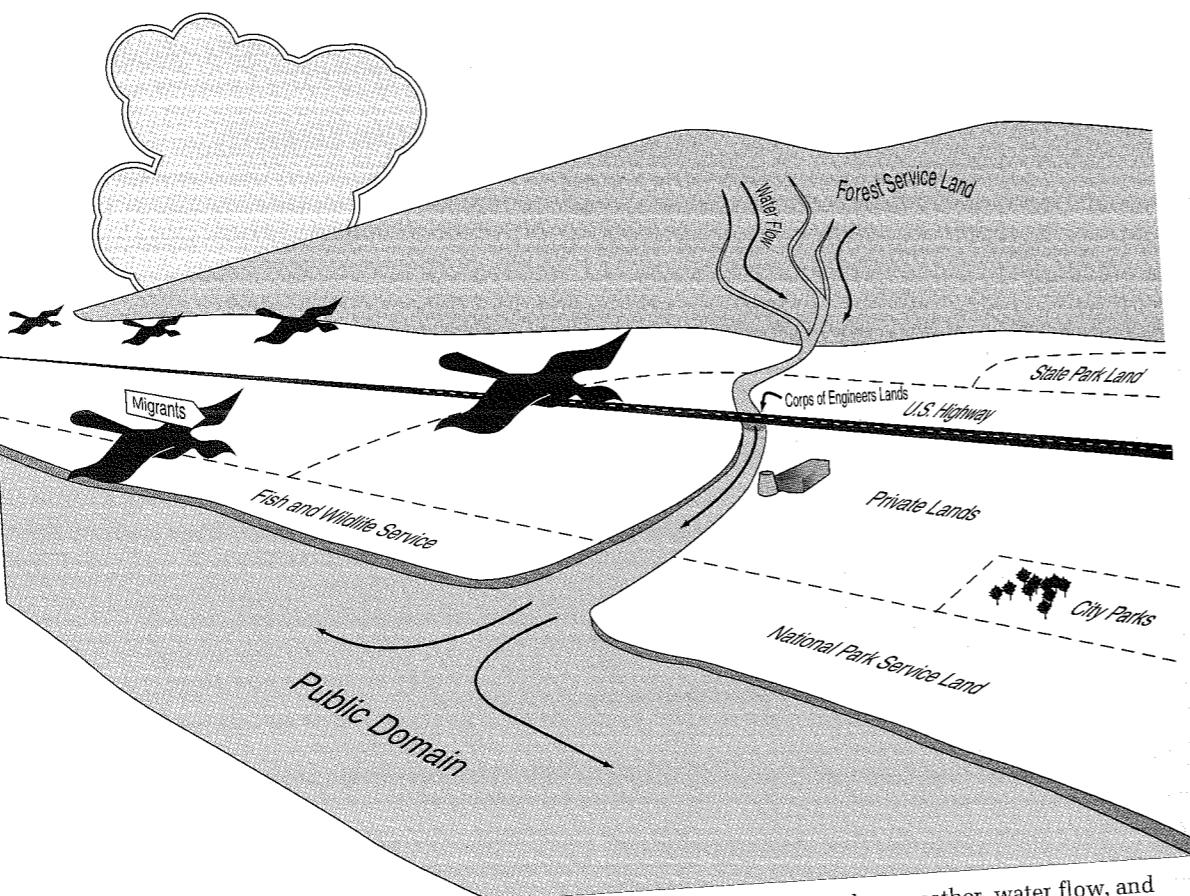


FIGURE 5.6 Political authorities often cut across natural processes, such as weather, water flow, and animal migration. When these ecosystem processes are ignored within political planning boundaries, problems usually result. Integrated planning is needed to contend with such problems.

and National Marine Fisheries Service are good examples of nationwide regulatory management systems superimposed over the public and private land-based management systems.

Among economic resources, all organizations need continuous investments of labor and capital in addition to the land-based resources. Most fundamental is the human resource, which is basically prepared by an educational system outside the management-system boundaries. The ability of the human resource to seek outside information for application inside the management system often makes the difference between success and failure. Also critical is the operation budget needed for salary, housing, equipment, supplies, travel, and services. Money is to a management system as energy is to an ecosystem. Without a budget, the organization fails to function (even voluntary organizations require budgets). Money links the economics of the management system to the larger economic system of the Nation and the world.

The outputs from management systems include all of the goods and services contributing to the public welfare, which determines public attitudes and future willingness to pay the price or the taxes for continued management-system products. Whenever little useful opportunity is provided, benefits usually are insufficient to justify the management cost. For private firms, this results in rapid adjustment to the marketplace or business failure. For government, it leads to escalated complaints, tax revolts, and the demand for smaller government. Environmental exports also may be important. Management organizations often interact in ways that require coordination to develop and sustain maximum benefit. Reservoir recreational management is a good ex-

ample. Many agencies and private firms provide boat ramps and related access and services among different reservoirs, often without considering the effects of uncoordinated efforts on use and benefit. This frequently leads to doubling up of unneeded opportunity and changes use patterns in ways that otherwise complicate efficient management. Reservoirs are just one of a large number of resources managed by a mix of public and private organizations, often as if the other management organizations were incidental or irrelevant. Such isolating activity, especially among government agencies, has spurred a variety of planning and coordination laws. Even so, true coordination is more rare among government agencies than the ideal.

Managing the System for Results

Simply providing opportunity does not guarantee use where it is desired. Too many public resource management organizations have emphasized provision of opportunities over customer benefits, using the premise, "If you built it, they will come." As a consequence numerous underused roads, campgrounds, harbors, boat ramps, reservoirs, stocked fisheries, and the like were provided in place of more useful provision of opportunities elsewhere. Resources developed for a use that never materializes benefits no one. In fact total benefits can conceivably be negative because the management money used is diverted from development of beneficial opportunities elsewhere. Osborne and Gaebler (1992) wrote an influential book entitled *Reinventing Government*, which emphasizes outcomes assessment in the form of public "customer satisfaction" as the way to gauge government effectiveness. For private corporations, as long as competition is sufficient, profitability is an unexcelled goad to "customer satisfaction."

Public, Private, and Advocacy Systems

Public Organizations. Numerous federal, state, and local government agencies make up an interactive complex of natural resource management systems (Table 5.1). Some agencies regulate the activities of other agencies, for example, as the EPA does under the authority of the National Environmental Policy Act of 1969. Most of these federal agencies form management subsystems within cabinet departments in the executive branch of federal government. The departments of Agriculture, Energy, and Interior are most consistently organized around natural resource management, but with some exceptions. Other departments play smaller roles in natural resource management, but few play no role at all. The numerous federal management systems can interact through complementary and overlapping jurisdictions, oversight, coordinative legislation, executive orders, various directives, and networking through professional organizations, workshops, publications, Internet services, and other communication. Because of the diverse purposes authorized for different agencies, the natural resource management subsystems do not integrate as well as they might into a single federal natural resource organization.

There has been periodic discussion about possible rearrangement of government agencies. The last major change in federal government pertaining to natural resource management was to integrate most of the diverse environmental protection functions into the Environmental Protection Agency. Insufficient integration of a natural resource planning process at state and local agencies also has impeded coordination among local, state, and federal management systems, interfering with the development of an effective planning process.

Business Organizations. Private business management systems are similar to government systems in their basic attributes, the main difference being the importance of competitive forces in their function. The nature of market-driven business systems is described in more detail in Chapter 4. Unlike government agencies, profit-motivated businesses have investors who expect to realize substantial profit from

TABLE 5.1 Major Federal Agencies Responsible for Natural Resources

U.S. Agency	Department	Natural Resource Authorities
Army Corps of Engineers (Civil Works)	Defense	Water resources management for navigation maintenance, flood damage reduction, recreation, environmental improvement, hydroelectric, and other water use; also enforces wetland protection law and administers public lands
Bureau of Land Management	Interior	BLM public lands management for range, forest, watershed, recreation, mineral, fish and wildlife, and other authorized use
Bureau of Reclamation	Interior	Water resources management for irrigation supply, recreation, environmental improvement, hydroelectric, and other water use; also administers public lands associated with water resource projects
Departments of Army, Navy, and Air Force Environmental Protection Agency	Defense	Authority over resources on military installations
Federal Highway Administration	Stands alone	Enforces U.S. environmental protection and restoration law and administers public water treatment facilities programs
Federal Power Authority	Transportation	Oversees development and maintenance of U.S. highway system and associated lands
Fish and Wildlife Service	Energy	Oversees development and coordination of U.S. energy production
Forest Service	Interior	FWS land management of the fish and wildlife refuge system, enforcement of U.S. fish and wildlife law including Endangered Species Act, and monitors fish and wildlife resources
Geological Survey	Agriculture	USFS public lands management for forest, range, watershed, recreation, mineral, fish and wildlife, and other authorized use
National Marine Fishery Service	Commerce	Federal natural resources research and mapping agency including hydrological, geological, and biological processes
National Park Service	Interior	Monitors marine resources and administers international marine fisheries and marine mammal laws including Endangered Species Act
Natural Resources Conservation Service	Agriculture	NPS public lands management including national parks, monuments, recreational shore, wild rivers, and other reservations of natural and cultural heritage
Office of Surface Mining, Reclamation and Enforcement	Interior	Agricultural resources services associated with water supply and drainage, soil maintenance, erosion control, and farmland, fish, and wildlife habitat management
Tennessee Valley Authority	Energy	Oversees and enforces federal legislation pertaining to environmental protection from surface mining and reclamation of lands for productive use following mining
		Water resources management for hydroelectric, flood damage reduction, recreation, fish and wildlife, and other uses in the Tennessee River Basin

company activity. Private businesses are quite diverse in size and complexity of goods and services they sell in the marketplace. Most businesses are small and usually specialize in a narrow range of goods and services. Common types of small businesses oriented around natural resources management include ranches, farms, engineering and construction firms, landscape and gardening services, travel services (restaurants, shops, gas stations/garages, hotels/motels), bus and other transportation companies, logging companies and sawmills, guiding and tour services, equipment and retail services, outdoor recreational services (ski slopes, marinas, golf courses, recreational vehicle rentals), mineral extraction companies, and local power and water-supply companies.

Larger companies may be “vertically assembled” based on ownership, extraction, transportation, delivery, and refinement of resources. Large mineral-resource industries often have an extensive network of landholdings, extraction equipment, refineries, and product delivery services. Most land-based businesses focus on development of specific resources, but some have diversified. Interest in developing recreational services on privately held rangeland and forest land has increased, for example.

Advocacy Organizations. Advocacy groups are extremely diverse and represent a wide variety of public and private land-use concerns. Advocacy groups are non-government organizations (NGOs) that are typically nonprofit organizations. Usually, they are motivated to shape public or private policies through various strategies including marketing their positions through communications media, business boycotts, demonstrations, court actions, lobbying legislation, strategic property purchases, and, rarely, unlawful sabotage. Over the past several decades, they have become the primary avenue for representation of stakeholder interests in outcomes pertaining to public resources management. Environmental advocacy groups have been especially effective in promoting their special interests.

The goals of advocacy groups are organized with special interest objectives in mind, but sophisticated organizations realize they can be more successful in a situation where none of the stakeholders are perceived to be total losers. Public management systems are increasingly involving advocacy groups early in the planning process to help work through difficult issues, especially those pertaining to private land use and development. Numerous advocacy groups are concerned about natural resources and the environment. Among the better known are The Nature Conservancy, Sierra Club, Wilderness Society, World Wildlife Fund, Audubon Society, and National Wildlife Federation. Professional societies also have moved into advocacy roles. Examples include the American Society of Foresters, the Range Society, the Wildlife Society, the American Fisheries Society, the Society for Conservation Biology, and the Ecological Society of America.

PLANNING PROCESS

Inventorying Planning Environments

Information Gathering. Inventory is the process of gathering and analyzing information. It sets the stage for development of vision and its translation into reality (Figure 5.7). Inventory activities go by numerous titles including survey, monitoring, research, intelligence, environmental scanning, cost accounting, forecasting, trend analysis, systems analysis, issue and problem identification, SWOT analysis, stakeholder analysis, and information resources and management. Problems and opportunities are identified early through continuous and astute inventory methods. For natural resource organizations, inventory centers on the state of natural resources, their development and use, and the profits or benefits derived from them. The most basic intelligence pertains to changes in the “balance” between resource supply and resource demand, changes in the influential planning environment, such as laws and other mandates, organizational condition, and stakeholder needs. Perhaps most importantly, inventory helps to clarify visions of desired future resource conditions. Inventory examines the state of things both inside and outside the management system.

Reviewing Mandates. Planning inventory often starts with a review of the laws or the mandate authorizing actions or regulating action (Bryson 1995). For public organizations, laws provide authorities to work toward certain ends. But authorization laws often are quite broad, leaving latitude for the organization to create a sense of purpose or mission that extends beyond existing law. Planning often inventories the legal mandate, organizational authorization, and policies before proceeding into new initiatives.

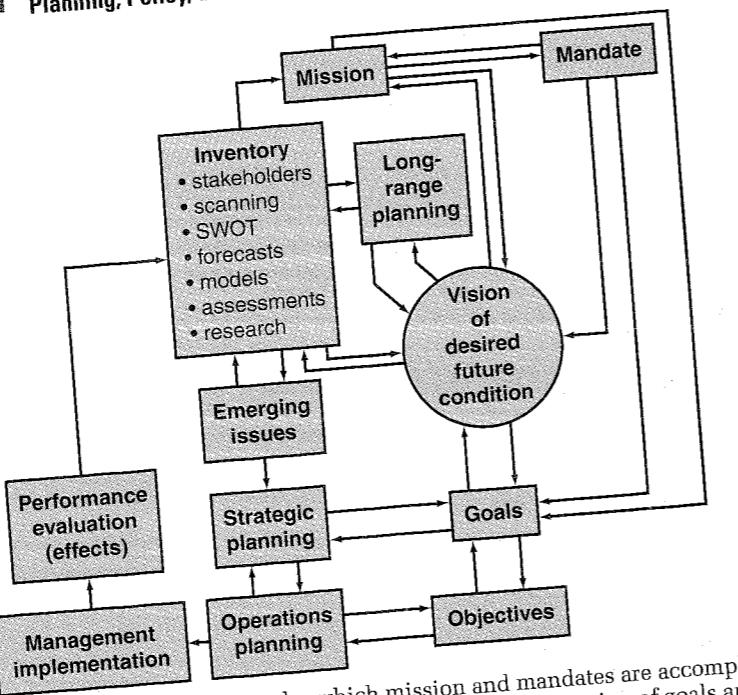


FIGURE 5.7 The general planning process by which mission and mandates are accomplished. Planning starts with a vision of a desired future condition and identification of goals and objectives that will realize the vision through operations planning and implementation. An inventory of existing conditions, including emerging issues, is completed to develop effective strategy.

Private organizations also are bound by laws that limit their operations to socially acceptable practices. These laws often originate from government action designed to promote constitutional ideals, which strive to protect individual rights while assuring improvement in the general public welfare. Most organizational legal conflicts arise over private rights versus the general public welfare. Whereas legal mandates both authorize and regulate the operations of public-service organizations, they only regulate the operations of private organizations.

Some extralegal public expectations from government can approach the force of legal mandate. Public opinion may at times be strong enough to approach the force of law. Many state fish and wildlife agencies, for example, are legally mandated to serve the needs of all state citizens. Although management of fish and wildlife resources benefit many nonconsumptive users, a select group of hunters and anglers typically pays most of the management costs in many states. As a consequence, the desires of hunters and anglers can act as an extralegal "mandate" whenever they differ collectively from those of other citizens. Public service favoring special interests continues to be common whether the agencies regulate or otherwise manage water, food, range, forest, real estate, fish, wildlife, biodiversity, mineral oil, or other resources. Government agencies vary in their success at optimizing the demands of special interests consistent with serving the local, state, and national interests.

Reviewing Mission. The mission is the organizational rudder—the fundamental means for communicating the essence of organizational purpose among members and all others affected by its performance. The mission usually identifies who is to be served by the organization and how and where that service is to be provided. An effective mission statement conveys an accurate sense of organizational attitude toward its employees and the world it intends to influence. Inspirational mission statements are motivational and impressive, contributing to morale of the organization membership and the respect of stakeholders, if the organization follows through. For agencies, a good mission gives focus to legal authorities and frames values in such a way that goals may flow naturally from it. The mission statement is the main com-

munication of intent within the organization and between the organization and outsiders. It needs to be reviewed to sustain or change direction as new information is received through inventory (Figure 5.7).

Environmental Scanning. Environmental scanning is a sweeping approach to reviewing planning environment trends relevant to organization management. Trends and emerging issues that have significance as management opportunities or problems are brought to the planning process for identification of the most effective alternative. This process usually requires perusal of trade magazines, newsletters, various digests, legal briefs, news media, press releases, Internet home pages, and other communications from within and among diverse stakeholder groups. The focus is on finding emerging issues—potential problems, solutions to problems, or other opportunities in their earliest stages. These are tracked and incorporated into the planning process as they more fully emerge or are discarded as they fade in importance.

Stakeholders. Stakeholders are individuals and groups affected by actions of the organization. Stakeholders are best assessed and brought into the planning process as early as possible (Bryson 1995). Certain stakeholder groups often are the object of organizational performance as service recipients, promoters, or detractors.

SWOT Analysis. Effective planning often requires SWOT analysis of the strengths (S) and weaknesses (W) of the organization and the opportunities (O) and threats (T) originating outside the organization (Bryson 1995). Forecasts of change are an important part of effective SWOT analysis. In a dynamic planning environment SWOT analysis, or some variation of it, can become a frequent part of the planning process.

Forecasting. Forecasting is the process of predicting future trends and/or future conditions. The future usually is dependent on too many events outside management influence for perfect forecasting. The most useful approach is to plan for several feasible alternative futures. Planning for alternative futures introduces an element of flexibility and proactive process in anticipation of change. The effects of resource demand on continued supply, for example, depend on trends in both resource supply and demand. Forecasting analysis allows prediction of future supply based on estimated demand. From this information, stakeholder benefits can often be tracked. Inventory also includes monitoring of all organizational costs incurred by project activity, allowing benefits to be compared to costs.

Mathematical models often are used to integrate information into analytical tools for forecasting the effects of different management policies. Typically the models represent relationships among variables determining resource supply and demand. Development of precise predictive models can greatly reduce inventory costs, but often with substantial investment in the developmental research. Predictive models exist, for example, to characterize water resources, fish and wildlife habitat, timber production, range production, viability of rare species, and nonrenewable resource depletion. Many organizations use qualitative approaches for analyzing future change. Some models are comprehensive enough to represent whole systems and are used for systems analysis. Sometimes physical models, including natural ecosystems, are used as a reference for the planning process.

Focusing Management Intent

Mission. The process of focusing management intent into implementation of a plan typically starts with the statement of organizational mission and values. When well stated, mission and value statements guide the formation of planning vision, goals, and objectives for organizational accomplishment. Basic elements of all U.S. government missions follow from the mandates of the U.S. Constitution, which emphasizes

CHAPTER 5 ■ Planning, Policy, and Administration

improvement of the general welfare, including the interests of future generations. For those agencies responsible for managing renewable resources, the mission often identifies resource conservation or sustainability as a guiding philosophy. In response to political influences, most agency missions historically have focused their service on the most active special interests identified in their authorities: timber and recreation in the Forest Service, agricultural irrigation in the Bureau of Reclamation, navigation improvement and flood-damage reduction in the Army Corps of Engineers, livestock forage in the Bureau of Land Management, environmental improvement in the Environmental Protection Agency, hunting and fishing improvement in the Fish and Wildlife Service, and many others.

Planning Vision. At the center of systematic planning (Figure 5.7) is the focusing of a vision of desired future condition based on achievable tasks (Bryson 1995). The establishment of an acceptable vision of desired future condition, or outcome, may be the most critical part of an effective natural resource planning process (Bryson 1995). If the vision is vague or unrealistic, much time and money may be spent ineffectively. Without visions of what needs to be accomplished, an organization can drift through the management system environment without having much effect.

A planning challenge is building consensus among diverse stakeholders in the development of a *shared vision* of desired future condition of resources. The approach to building consensus is to provide an environment that favors the open exchange of information among the resource experts knowledgeable about trends and stakeholder's needs. A variety of approaches have been developed to facilitate an orderly discussion of issues. A critical part of the discussion hinges on the knowledge of how benefits will be distributed among stakeholders as a consequence of the policies selected. Visions can be developed at different organization levels ranging from small everyday projects to the vision behind organizational mission.

Goals. Goals are more general descriptions of elements in the vision to be accomplished and the general means to be used in accomplishment. They do not specify the results precisely. Where organizational visions of successful management are reasonably clear, goals are relatively easily developed in pursuit of vision realization. The goals of public resource agencies usually emphasize generations of public benefit while sustaining resources. Private enterprise emphasizes a larger market share, a greater profit, and better employee income and benefits. Goals also identify the approaches that are to be used in pursuing the mission, including education, regulation, research, and management. Goals typically are not scheduled for a specific completion date and sometimes remain unchanged for many years. Goals are most easily developed in stable planning environments where visions of desirable future conditions are clear (Bryson 1995).

Issues. Even in the most stable planning environments, organizational threats and opportunities emerge. Issues usually can be disassembled into problems that need solution if the organization is to most efficiently pursue its purpose. A special area of the goal-driven planning process deals with issue management (Bryson 1995); threats are mitigated and opportunities are exploited.

In organizations with unstable planning environments and vague visions of organizational success, most planning is dominated by disruptive threats. Many resource organizations have become less stable in recent decades as conflicting demands of diverse stakeholder groups have grown in intensity. In those situations, visions of success often become muddled and issues drive the planning process. Strategies and tactics are developed to mitigate or exploit each issue. As greater control is developed over issues, they may become the focus of new goals and new visions of success (Bryson 1995). But until then, the issues replace the goals as targets for planning accomplishment.

Translating Strategy Into Operations

Strategic Planning. Strategy is a proactive, as opposed to reactive, and adaptive, as opposed to standard, approach to identifying and solving problems and taking advantage of opportunities (Bryson 1995). Strategic planning typically addresses time horizons beyond the present budget planning period, which usually extends less than three years forward. These shifts may derive from past natural resource practices, new knowledge, changes in law, changes in customer and public preferences, new technologies, natural catastrophes, and new trends identified during inventory of planning environments. Strategic planning is most effective where long-range planning has provided sound information about major resource trends.

Long-range planning is a category of strategic planning that involves analyzing trends and then setting far-off goals, and/or avoiding strategies that are ultimately incompatible with desired long-range outcomes. The goals of long-range planning typically are very general. Since most natural resource management is intent on improving human quality of life, long-range targets typically focus on sustaining natural resource options for future use. For natural resource management, knowledge of resource abundance, renewal, extraction rates, and environmental regulation are critical elements in estimating long-range status. Long-range analysis and planning addresses generic issues about trends in resource supply and demand, availability of substitute resources, and the need for regulating demand to sustain resource supply. It also examines the recovery times needed to sustain renewable resources at levels compatible with social demand. The U.S. Forest Service, for example, uses 50-year planning horizons based on timber cutting cycles. Even 50 years is far short of the centuries needed to reestablish old-growth forests. Similarly, recent legislation has authorized ecosystem restoration by the Corps of Engineers, which also requires long-range visions of desired future conditions and strategies for their realization. Strategic planning needs to be flexible, adaptable to changes in the planning environment, and continuous. Strategic planning is focused more on relative program emphasis and new program needs than it is on project planning. For example, developing criteria for ranking project priority would fall into strategic planning.

Operations Planning. Operations planning links the organization budget to plan implementation. In operations planning, project objectives are clearly defined, projects are ranked in priority, and budgets are assigned to each area of management directed at project completion. The typical target of the most detailed operations planning is the budget year—which may be based on the calendar year or some other initial and ending date. When done well, a number of alternative approaches to objective accomplishment are compared and the most cost-effective alternative is used to accomplish each project.

Objectives are developed to focus tasks on measurable achievement. In contrast with the open-ended time frames typical of goals and issues, objectives have deadlines for specific accomplishments. The specific procedures used to pursue objectives compose the operational tactics—or *operations*. Typically, a suite of specific objectives is used based on indicators of the desired future condition. For example, a restored wetland may be the planning objective. A completely functional wetland may be anticipated if the objectives detail the important attributes of the landscape, the water supply, nutrient and sediment supply, and the species that are envisioned in the structure and function of that wetland.

Operations planning focuses on objectives formulated for completion according to schedule. An important part of operations planning is the assignment of personnel time to scheduled tasks. Within the Forest Service, budgeted projects for recreational service might include numerous outputs like road improvement, installation of new campgrounds, development of nature trails, improvement of user-law compliance, development of brochures, and research reports. Operations planning usually follows a

predictable annual cycle in both public and private management systems and is linked to strategic planning.

Organizational Performance Evaluation. Without evaluating accomplishment, there is no way to confirm management success. Thorough evaluation usually requires a well-organized monitoring process, which minimally monitors management costs and benefits. Performance evaluation may also monitor some of the intermediate management outputs designed to provide customer opportunities. The main reason for this monitoring is to determine inefficiencies in providing benefits and how to improve upon them. Performance can be measured in terms of process outputs and in terms of customer satisfaction or benefits. Job performance usually is based on completion of assigned tasks, but ultimate organizational performance is gauged by the benefits provided.

Private businesses have no question about the utility of performance evaluation. Without it, they would have no knowledge of how much income exceeded costs and the proper base for taxes and distributing profits. Government agencies have had more problems evaluating performance in benefit terms, tending to count opportunities provided (e.g., roads built, wildlife counted) or process rates (publications produced, law violations cited) rather than benefits generated. Although some agencies are required by their authorities to generate more benefit than cost, techniques for estimating benefits were not available for certain activities until very recently (e.g., recreational use). The benefits of other activities, such as much environmental protection and improvement, cannot be entirely monetized using widely accepted techniques to estimate benefit in a way that can be compared directly to cost. Instead, the relative significance of the results needs to be gauged as a proxy for benefit. The Government Performance and Results Act of 1994 institutionalized more consistency in federal government with respect to performance assessment.

PLACING BOUNDARIES ON PLANNING PROCESS

Organizational Planning Boundaries

Practicality dictates that planning be manageable in scope. Boundaries may be set on planning process in a number of diverse ways. Planning is frequently delineated by organizational activities including project, program, and comprehensive organizational activities. Planning also is frequently organized geographically or regionally. Integrative management planning process facilitates organizational interaction.

Most organizations divide their labor according to program and project boundaries. Program and project planning often are done separately, but involve interactive processes. Program and project management can be viewed as subsystems in organizational management systems. Management subsystem boundaries often are based on the dimensions and relationships of work activities organized to assemble materials, energy, and information into a new or improved output or "product." The output often is a good or a service of some kind, or a combination of goods and services.

Project Planning. Project planning typically focuses on organizing natural, human, and fiscal resources into the desired kind and amount of output in which some form of accomplishment can be measured. The most obvious types of projects are physical constructs of some kind—for example, dams, levees, boat ramps, toilets, campgrounds, roads, city parks, trails, and habitats. Projects also may include new methods for identifying and extracting natural resources, ways to refine raw materials, and development of improved information services in the form of books, videos, and advertising in various media. Conceptually at least, there are no activities in organizations that could not be assigned to a project.

Projects form a basic unit for planning and operations in natural resource management. They typically set up objectives for accomplishment with deadlines. Project boundaries often cross administrative lines, and require careful coordination usually through a project manager.

Many organizations separate "routine operations" from projects. Because routine operations typically are not expected to have clear outputs and outcomes, they usually are not considered projects. However, some management organizations attempt to integrate most, if not all, activities into projects. Even operations as general as administration contribute to different projects. That contribution must be integrated into project cost if the real cost of the project is to be estimated. Certain administrative initiatives may be categorized into projects of their own. Most, if not all, operations can be linked to accomplishable objectives. This approach provides targets for improvement or, at very least, sustained performance. Otherwise the routine operations can steadily degrade in performance, diverting important resources away from innovative accomplishment.

Many government projects include a mix of agencies and private contractors in project development. A federal water resource project, for example, typically involves local and federal agency "partnering" and contracting with private services, all of whom need to be coordinated through the project planning process. Most projects also have a variety of stakeholders who usually need to be involved in the planning process, especially early in the development of a shared vision.

Program Planning. Programs typically are organized around customer service and associated benefits. A state conservation organization, for example, may have sportfishery, commercial fishery, wildlife, forest, range, and mineral-resource programs, each with numerous projects. Programs often are linked to specific sources of funding, but may be funded out of a larger pool. In either case, program managers need to argue for funding based on the benefits that will be produced from the program. Commonly, programs form around the special interests of certain stakeholder categories, which makes for easier analysis of program effectiveness than when they cut across linkages between resources, opportunities, uses, and benefits. However, many agencies are organized that way, with planning in one program and implementation in other programs.

Programs envelop groups of projects with similar attributes and purposes into a larger organizational decision process. A program-project matrix may be used to organize project activities into program areas. Each program includes projects pertaining to outcomes desired of each program and program managers typically seek those projects that contribute most to program performance in generating outcomes as planned. When left up to the program management, an important function is to decide how to cost-effectively distribute budgets among projects so as to generate the greatest public benefit or profit. Program management also provides centralized support services to all projects, thereby cutting project costs.

Comprehensive Organizational Planning. Comprehensive management planning coordinates across groups of programs within an organization (Crowe 1983). It can be viewed as systemwide planning for organizational management systems. Comprehensive planning addresses decisions about future program emphasis, the development of new programs, and the retirement of others. Comprehensive planning seeks integration among all programs under the organizational umbrella. It may seek to develop new and/or terminate old programs. Much of the demand for government programs is expressed in new laws. Over recent decades, for example, natural resource agencies have responded to new laws by directing more management resources to programs that emphasize protection of resource options (e.g. endangered species) and ecological services (e.g., flood-damage reduction, erosion control, and fish and wildlife habitat).

In most planning processes, long-range, strategic, and operations planning grade together. Strategic planning uses outputs from long-range planning to help identify

CHAPTER 5 ■ Planning, Policy, and Administration

appropriate goals, program emphases, and strategies. Operations planning uses outputs from strategic planning to formulate project objectives and tasks for their accomplishments. The most effective planning involves continuously adding output information to the planning inventory and adapting plans to new conditions. This is called adaptive management.

Regional (Geographic) Planning Boundaries

A common way to place boundaries on planning and management systems is through geographic or regional boundaries. The boundaries are most commonly defined by political boundaries, but are increasingly being defined by natural boundaries.

Politically Bounded Planning. Political boundaries traditionally have been emphasized in the identification of planning regions such as city, county, state, and national boundaries; the boundaries associated with different government agency authorities; and private land boundaries. Urban planning often ends at the city limits, but increasingly it is extended to a metropolitan area and beyond (Kaiser et al. 1995, Cullingworth 1997). Regional planning usually is chosen when the object of planning is land and water resource use that requires linkages across political boundaries. Before the 1960s, most regional planning was economically motivated, and often focused on one or two forms of development, as was the Tennessee River basin. It was developed for electric power generation by the federal government based on economic improvement of an especially depressed area. Transportation planning also is regionally based. Regional planning for utilities and transportation provision were among the first ways business and governments integrated activities through the planning process; therefore, they were also very influential in determining the way in which the nation developed during the twentieth century. However, more recent regional planning has incorporated environmental quality considerations in response to a rapidly degrading environment and corrective laws passed mostly in the 1960s and 1970s.

Naturally Bounded Planning. Regional planning is increasingly adopting principles of landscape ecology into the planning process (Steiner 1991, Dramstad et al. 1996). When this is done, it emphasizes natural connections among ecosystems and more natural bounding within and among planning regions. Management systems also may be naturally bounded at least in part such as by watersheds, coastal zones, geological formations, soil types, and vegetation types. Coastal zone planning has been encouraged by the Coastal Zone Management Act of 1972 and is done by most coastal states (Kaiser et al. 1995). Watershed planning became useful for water resources management when the Water Resources Planning Act of 1965 established river basins to delineate national water resources planning. Within the past several years, the EPA resurrected a watershed approach, which is gaining greater attention among many natural resources agencies. Many resource management agencies apply natural boundaries, such as watersheds and vegetation types, within their authorized political boundaries.

Integrated Resource Management Planning

Integrated resource management planning seeks the development of a more holistic approach to planning across organizational planning boundaries. Many of the natural resource agencies in the past interacted relatively little except through policy mandates. They have been encouraged toward more integration by laws that require greater cooperation and coordination. At the heart of integrated resource management is the development of a shared vision of desirable future condition. Policy development in the form of new laws and their interpretation into rules and guidelines is a critical part of this integrated management process. The problem has taken on an international perspective, most recently with concern over ocean fisheries, global warming, and biodiversity loss. The new concept of ecosystem management (see

Chapter 23) demands a more integrated effort than has been required previously. This will be especially true if a shared vision of future landscape conditions is to be realized for large watersheds, oceans, and other large ecosystems. In this view, the ecosystem becomes the common boundary for guiding each organization's system management toward a larger systems integration.

Several decades ago a form of urban regional planning called comprehensive planning was first initiated to integrate across local political jurisdictions. The process has had mixed success, depending greatly on the extent that states have developed planning guidelines (Kaiser et al. 1995). Attempts at integrated planning have been derailed when the participating organizations came to the table with their own mostly inflexible plans. By then they had invested too much in the planning process to modify it readily. Integrated planning often is a long process involving any number of stakeholders who can stymie a shared vision. Increasing emphasis on protection of personal property rights has been a major contributor to the slowdown in integrated land-use planning. Although difficult and often prolonged, integrated resource management planning is the most promising approach to many pervasive problems such as urban sprawl, habitat fragmentation, and water conflict resolutions.

EXAMPLES OF AGENCY PLANNING

Brief descriptions of planning in three very different federal agencies reveal consistency in the basic elements of planning process. They also show how quite different natural resource organizations integrate into a larger interorganizational planning and implementation process. In addition, they show examples of how federal agencies interact with state and private organizations to accomplish national goals and objectives as identified in federal law. Similar interactions between the public and private sector exist at state, county, and municipal levels of government.

The Environmental Protection Agency

When formed in 1970, the EPA was directed to administer a host of already existing environmental laws as well as new laws. These are the basis of a predominantly programmatic planning process. The EPA is authorized to set environmental standards, seek congressional funding for and allocate that funding for corrective measures, conduct research to develop more effective standards and means for meeting them, enforce the rules and regulations developed to meet the standards, and evaluate progress in meeting standards. Establishing and enforcing the meeting of standards is the means for carrying out the EPA mission, which is "to protect human health and to safeguard the natural environment—air, water, and land—upon which life depends." The administrative authority and authorized funding associated with each law established a programmatic basis for agency planning, which is reflected in the administrative divisions of the agency. The EPA does relatively little project planning and development itself, but does fund other organizations for that purpose, as authorized by Congress. While the corrective technology, planning, and implementation of projects are funded mostly by the regulated organizations, the EPA administers grants to facilitate compliance with the law. For example, federal funding is passed to municipalities for their waste treatment projects and to commissions for watershed-based planning designed to comply with water quality standards.

EPA strategic planning, like that of other federal agencies, is designed to respond to the Government Performance and Results Act of 1994 by identifying its main programmatic goals and objectives and establishing annual performance measures to evaluate agency performance in achieving objectives. For the EPA, the goals and objectives of the strategic plan are based on achieving the approved standards for air, water, and other environmental quality. The application of economic criteria, such as a net-benefit criterion, varies among programs, depending on the requirements imposed in individual

laws. The risk associated with lost life expectancy is an important criterion for determining environmental standards and prioritizing program activities.

The EPA influences the planning of all other agencies in its role as the administrator of such nationally inclusive legislation as the National Environmental Policy Act, the Clean Air Act, the Clean Water Act, and Superfund legislation. It also develops guidance for the planning and implementation process, such as for watershed-based planning, then makes it available to individuals and institutions concerned about meeting environmental standards. Other federal agencies having similar regulatory influence are the Fish and Wildlife Service and the National Marine Fisheries Service, which together administer the Endangered Species Act. The effectiveness with which the EPA and other regulatory agencies accomplish their regulatory objectives as required under the Government Performance and Results Act of 1994 depends on how effective they are in getting all agencies and other organizations and individuals to comply with rules and regulations intended to meet environmental standards. In this way, the regulatory agencies work programmatically to encourage effective project planning and implementation in other agencies and in the private realm directed at preventing and correcting environmental damage.

The Corps of Engineers

The Corps of Engineers (Civil Works) is authorized to plan and implement justifiable water resource development projects primarily for navigation, flood-damage reduction, and ecosystem restoration services of benefit to the nation, and secondarily including storm-damage prevention, hydroelectric power, recreation, water supply, and other services. Similar to the other federal water resources agencies, the Corps planning process emphasizes project planning, starting with project development and continuing through operation and maintenance of projects built entirely with federal funds before 1986. Since 1986, all projects have required a local sponsor who bears part of the costs and assumes all operation and maintenance responsibilities. Federal funding is authorized through congressionally approved allocation of funds to each project.

The project development planning process for federal water resources agencies is defined by a president-approved set of principles and guidelines that established a national goal for water resources project planning, which is "to contribute to national economic development consistent with protecting the nation's environment." The national economic development goal is linked with the environmental protection goals identified in standards developed by EPA, FWS, NMFS, and other authorized agencies. The project is rejected if planning analysis reveals the benefit does not justify the cost or that environmental standards cannot be met. Ecosystem restoration projects provide a means for local agencies to meet national environmental objectives identified in the standards established by the EPA, FWS, and other regulatory agencies. In these ways, the authorities of diverse agencies are integrated into pursuit and accomplishment of national goals and objectives identified in congressional law.

A six-step process is defined for project planning that (1) specifies the problems and opportunities; (2) inventories, forecasts, and analyzes the water and related land resource conditions; (3) develops alternative plans; (4) evaluates the effects of each alternative plan; (5) compares the alternative plans; and (6) selects the recommended plan based on the comparison of the alternatives. The recommended plan must be that plan most consistent with the national economic development goal. The primary criterion for meeting the national economic development goal is value added to the national goods and services—that is, the benefits must exceed the costs. In budgetary planning, projects are ranked in order of greatest difference between benefit and cost (net benefit). Those projects not fitting within the congressionally authorized budget are postponed for consideration in the next budget.

Policy directs that a watershed-based regional approach be taken for analyzing project feasibility and alternatives effectiveness. A chronic problem with the Corps planning process is that all benefits cannot be readily measured in dollars, and ecosystem restoration projects, especially, must be justified based on criteria other than those used to assess national economic development. This presents a conundrum for prioritizing individually authorized projects in budgets—a problem encountered by all government agencies but most clearly faced by the water resource agencies.

The USDA Forest Service

The Forest Service has one of the more comprehensive natural resources planning authorities in the United States. Its planning authority is grounded in its land management authority for the national forest resources and in a number of other laws that link national forest planning to regional and national inventories of resource supply and demand. The Forest Service mission is "to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations." To do that, the planning processes conducted at each of the 155 national forests and 20 national grasslands are interfaced with regional planning in each of the 9 regions, including resources on private lands, and with national planning coordinated through Washington headquarters.

At the national level, the Forest Service is authorized to conduct a resource planning inventory to periodically assess and report on the status of all of the Nation's public and private forest and rangeland resources including future needs, and to develop a fully integrated plan for management of National Forest resources within defined planning areas. The primary objectives of land and resource management planning done by the Forest Service are to assess the capability of a planning area to provide forest and rangeland goods and services in the most cost-efficient, beneficial, and environmentally sound way. Based on regional assessments of supply capability and demand, each of the National Forests is assigned resource supply targets consistent with long-term sustainability. Each Forest Service region develops a set of alternative resource management plans and determines the preferred plan based on how well the regional issues and management concerns are addressed. The Forest Service must comply with all laws administered by federal and state agencies. As with all natural resource agencies, the National Environmental Policy Act, the Endangered Species Act, and the Government Performance and Results Act in particular have had large impacts on the planning process and objectives formulation.

At the national forest level, a forest plan is developed that guides all management activities at program and project level according to multiple-use and resource sustainability principles as authorized by Congress under the Multiple-Use and Sustainability Act of 1960. The forest plan develops goals and objectives for land use and resource outputs consistent with environmental standards identified by the EPA, FWS, and other agencies. Forest plans are programmatic and identify projects for funding within the annual budget period. Each project undergoes its own planning process in which details and budget needs are identified and the forest plan refined as needed. Then the management measures proposed to meet objectives are analyzed to determine the most cost-effective combination of tactics for objective achievement. A set of alternative plans is developed for a 50-year planning period, with emphasis on the first 15 years. Each alternative plan must address all of the relevant issues and resource targets, as well as environmental constraints. All forest plans must be updated within 15 years. The effects of alternatives are analyzed to identify the plan most likely to meet the objectives cost-effectively while satisfying a set of agency-identified management principles. A monitoring program must be identified to evaluate implementation success and guide the plan modification through a process of adaptive management.

POLICY**What is Policy?**

Policy is the means by which organizations guide behavior within and outside their membership. For many organizations, this begins with the writing of a charter, constitution, or other document defining why the organization exists and generally how it will act in pursuit of its purposes. Policy may be public or private. Most public policy is written to guide the interpretation of law into specific guidance, rules, standards, regulations, and other actions. In the United States, the Constitution is the foundational law guiding all public policy. Because planning guides pursuit of purpose, effective policy depends on effective planning. Because policy guides organizational behavior, including planning, effective planning depends on effective policy. The two are closely aligned.

Both private and public policies contribute to natural resource development and management in the United States and many other countries. Private policy is determined through a variety of organizational management styles, which must also respond to relevant public policies. Public policy is developed and administered by government through a system of laws, regulations, rules, and standards. An important function of the U.S. Supreme Court is to assure that all public and private policy is consistent with the U.S. Constitution. All state constitutions and laws must be consistent with the U.S. Constitution as well as any county, municipal, or other government law.

Most laws place authority for their enforcement in a specified branch of government. These laws often authorize an agency to develop regulations and management standards. Most laws pertaining to natural resource management authorize discretion to agencies in developing and enforcing regulations, but usually require public involvement in the process. For natural resource management, this process usually requires agency knowledge of resource availability, renewal rates, if any, demand for consumptive and nonconsumptive use of resources, and the environmental and social implications of resource use. Some authorities are linked closely to public lands assigned to agencies for management responsibility, such as the U.S. Forest Service. Other authorities are less directly tied to land ownership, such as water resource management by the U.S. Army Corps of Engineers, Bureau of Reclamation, and the Natural Resource Conservation Service, but usually involve land-use agreements if not public acquisition. The regulatory authorities of some agencies, such as the Environmental Protection Agency and the U.S. Fish and Wildlife Service, extend to all public and private lands and waters.

Roles of Federal, State, and Local Governments

The need for more policy consistency and effectiveness was one reason why federal policy eventually came to dominate natural resource management. Natural resource public policy was locally developed and applied before federal government became active in developing resource policy toward the end of the last century. A mix of local, regional, national, and international policy now exists, creating a complicated mix of jurisdictions and regulations. This mix requires coordination in regional management and complicates management across jurisdictions. Federal policy development often has benefited from earlier state legislation that attempted to deal with natural resource issues. Many state and local natural resource laws were enacted before the federal government addressed these issues. These regional laws often served as models for the development of national law.

During the twentieth century, the federal government assumed leadership over state and local governments in developing comprehensive natural resource policies. Many of the issues associated with natural resources required a large view of national trends such as universal resource depletion and environmental degradation. The

federal government has taken the lead because many local governments had neither the broad perspective nor the resources to coordinate legal solutions to universal issues. Also, most public land ownership resides with the federal government. State and local governments control relatively little public land.

Budget Policy

Although legal authority guides agency function, budgetary authority drives it by paying salaries and other operation costs. All public policy is contingent upon appropriate allocation of budget among government functions. Many agency authorities are limited by the size of the budget allocated to them. Budget development and justification is a crucial aspect of all organizational activity. Budget justification begins with how effectively salary is used to attain authorized outcomes. Job description and performance assessment often are tied back to the anticipated performance of the agency.

Budget policy varies among different private and public organizations, often complicating the coordination of activities. Although federal government budgets extend from October 1 through September 30, the budget year for other organizations commonly start in January or July. Planning for budget allocation is diverse, even among agencies within governments. These complicating differences reflect past independence in the planning and management process, many of which have contributed to existing resource management problems.

Public and Private Policy

Public policy takes precedence over private policy. Public policy can effect desired human behavior through either punishment or reward. Prohibitive laws allow no personal choice and administer punishment when violated. In contrast, tax policy often provides incentives for desired behavior. Tax policies that mimic the private marketplace provide positive incentives in place of the negative incentives from threats of fine and imprisonment. Policy can be relaxed, or laissez faire, leaving much personal choice or can be quite restrictive, leaving little personal choice. With respect to natural resource management, public policy has become increasingly restrictive as resources in general have grown scarcer and user actions have had increasing impact on each other.

This is no clearer than with air quality laws. Clean air, a resource "owned" in common and supporting human health and happiness, has grown much scarcer because the atmosphere is used as a sink for industrial by-products. Population growth, industrial development, and growing use of carbon-based fuels have made clean air more scarce. The determination of resource value and scarcity depended mostly on government-sponsored research. Until recently, the government has emphasized regulation of emission amounts under threat of fines. More recently, as knowledge has grown, there is growing interest in selling permits to allow set amounts of waste emission at permit prices that would encourage reduction of waste emission (see Chapter 4). The permits could be sold to others. This approach allows more choice and relies more on market incentives.

MAKING POLICY**U.S. Constitution and Policy Development**

The U.S. Constitution guides all government policy development in the United States. Its interpretation is the source of some of the more vexing social problems pertaining to resource management. Constitutionally compatible laws only provide equal opportunity to gain economic and other resources. They do not assure equal economic resource allocation among citizens. In this way, the Constitution supports a free enterprise system based on fair competition.

CHAPTER 5 ■ Planning, Policy, and Administration

The Constitution was established to assure that the U.S. government served the public interest by improving the general welfare of all citizens. This imperative establishes guidance for government decisions that affect all aspects of welfare and has influenced the development of economic and other measures of welfare derived from government action. Although the intent of welfare improvement seems clear, there is much room for interpretation. General welfare can be promoted overall while harming individuals. Thus two important issues underlie many natural resource management decisions. First is the determination of how much benefit is generated from management with respect to the costs. Second is the redistribution of benefits needed to compensate those who lost benefits.

The Constitution also asserts protection of liberty for both present and future generations of citizens. A broad interpretation of this assertion precludes avoidable deprivation of the rights of future citizens to the use of public resources. Unnecessary destruction of resources reduces the freedom to choose among options for pursuing opportunity. Thus the government in the United States exists to improve the general welfare of its citizens while preserving the freedom of future generations to develop and use the Nation's resources. These constitutional mandates establish the goals of public natural resource management in the United States.

The Bill of Rights and many of the amendments that follow clarify personal privileges of citizenship. Through these amendments, the Constitution respects individual rights to pursue opportunities as they see fit as long as they do not threaten the rights of others. The government is obligated to consider the desires of all public sectors.

Whereas the Constitution grants the right to private property, it also grants the right of the government to purchase upon demand (condemnation authority) and at fair price, any private land deemed necessary for public functions. This provision protects options for developing beneficial public infrastructure such as transportation systems and other common-use areas. More recently this has been the basis for demanding compensation for decreased land values associated with enforcement of the Endangered Species Act. This controversial interpretation will probably remain a policy issue for some time to come. A 1984 amendment to the act allows a habitat conservation plan to be developed by the landowner as a way to mitigate the restrictive effect on the landowner, but problems remain to be settled.

Legislation

The legal system in the United States and other democracies often works imperfectly, but it has been an effective way to communicate and coordinate principles for group behavior. Although many people equate law with constraint of personal behavior, it is a means by which society resolves conflicts among individuals and groups, and fosters opportunity. Lawmaking is an incremental adaptive process. Many long-established natural resource laws have been amended numerous times and have had various sections repealed.

Most laws are developed through interactions among legislators, legislative aids, special interest groups, and agencies authorized to carry out the policies. The press plays an important role by communicating the issues. Special interest groups usually assign volunteers or pay lobbyists to represent their interests. The word lobbyist derives from a time when special interest representatives cornered legislators in the lobbies of state and federal capitols to influence legislation. Although one-on-one interaction remains, especially in state and local government, more often lobbyists bring their issues to legislative aids, where legislative concepts are first discussed, outlined, and drafted. Special interest groups also affect legislative action through financial support of campaign activities of legislators. Government agencies also influence legislation based on past experience in use of authority (Rourke 1984).

The special interest approach to legislation has advantages and disadvantages. The main advantage is that special interests are able to organize behind spokespersons who efficiently influence legislative change. As long as all interests are well represented by

special interests, this often is the most efficient way to systematically sort through the pros and cons of each issue before legislative action. A pure democracy is vulnerable to apathy and ignorance about issues. For many issues, the majority of people are disinterested and not very well informed. Disadvantages arise when interests are low profile but widespread, without articulate representation, and their financial backing is overwhelmed by wealthier interests. They also exist when the agencies authorized to regulate excesses of special interests instead become advocates of the special interests.

In response to what has been seen as too much special interest manipulation of the policy process, an increasing amount of state and local policy is developed directly by public referenda. Setting up a vote by referendum typically requires a public petition of significant size and approval of the legislature. This strategy may be effective when the issue has general support and limited opposition from special interests. However, the ultimate social effectiveness of legislation by referendum remains to be decided. The federal government does not as yet present referendums to the public for vote.

Government agencies in the United States execute their legal authorities under the chief executive, the President. Executive orders have the force of law within the administration, at least until the next president takes office. Some policy is sustained through executive order. State governors have similar authorities. Laws also may be called into question with regard to their constitutionality. The judicial branch of government has the authority for interpreting whether law is constitutional. Many natural resource and environmental laws have undergone constitutional "tests." Court decisions may be appealed through a series of court levels culminating with the U.S. Supreme Court.

Common Elements of Law. Natural resource law is voluminous and diverse. Many laws include a brief justification for the law. Numerous laws are reminders of the need to improve the general welfare and assure that public benefit exceeds management cost. Programs authorized by law often have a spending limit attached to them. While most laws typically authorize a specific agency to take leadership, many comprehensive laws direct coordination among agencies and the public.

Most authorization law directs development of specific codes; that is, the standards and regulations to be determined and obeyed. Such things as pollutant classification and concentration, wetland qualities, hunting and fishing regulations, engineering specifications, grazing rates, and timber harvest rates are recommended by technical employees in the field for approval at the highest levels. In contemporary proceedings regarding rules and regulations, the public frequently is invited to comment in advance. Technical recommendations are not always accepted by the public. The communication skills needed to extend information in a meaningful way to the public are in high demand. Even so, policy often is shaped by considerations other than technical merits.

Heads of agencies most typically are appointed by the president, governor, or other chief executive officer, but some state agency officials are elected. Often an oversight commission or board is appointed or elected to assure the public is well served. Although public representation is the idea behind directorships, commissions, boards, and other authorized governing bodies, public input is rarely polled directly using contemporary techniques that minimize bias. The system continues to function primarily through special interest persuasion.

ORGANIZATIONAL ADMINISTRATION

Integrating Organizational Activities

Organizational planning and natural resource management are integrative processes both impeded and facilitated by organizational structure. Organizational units are formed from the integration of tasks performed by individuals into a work product that is more than the sum of the individual tasks. The effectiveness of planning and

CHAPTER 5 ■ Planning, Policy, and Administration

management is influenced by organizational structure. Reorganization often is an unavoidable adjustment to new conditions and responsibilities or to more effectively meet established responsibilities. However, reorganization also is disruptive of established links among units resulting in trade-offs. Each reorganization must be weighed against the anticipated improvement.

In large organizations, units of increasing size envelop smaller units. Each unit functions to produce refined outputs from less refined inputs passed on to it by other units. Outputs may be material products like lumber produced from inputs of logs, sawmill facilities, payroll, and human resources. Many units in large organizations exist for the purpose of refining raw information into more refined or applicable reports, plans, and other outputs through data acquisition, analysis, and conceptual synthesis. Each functional unit is in turn integrated into larger units with similar functions to form the entire organization. Large organizations, like the executive branch of the U.S. government, have many organizational branches and many sub-unit supervisory levels. The uppermost level is occupied by the organizational leader, a Chief Executive Officer (CEO). At the next lower level, organizational units branch off into functional groupings.

Natural resource management is administered and planned by numerous private enterprises at national, regional, and local governments. The coordination of management activities to accomplish organizational goals is enhanced by an integrative and comprehensive organizational planning process. Plans are meaningless without adept administration, which leads the organization in developing and executing organizational plans. Administration facilitates the planning process and plan realization through coordination and communication within and among administrative divisions and units. The organization of these units usually derives from the diverse responsibilities assigned to people throughout the organization and from the geographic location of the activities.

The executive branch of the U.S. government, for example, is divided into departments, each of which has a central focus. Most of these departments are involved with natural resource issues in one way or another. However, natural resources are the primary focus of the Departments of Agriculture, Interior, and, to a lesser extent, Commerce. The Department of Interior, for example, has a wide variety of natural resource responsibilities mixed with certain social responsibilities. It has broad authority over fish, wildlife, certain water development, rangeland, and mineral development, especially with respect to public lands and waters. In the Department of the Interior, the Fish and Wildlife Service is administered through programs and geographic regions—each area of which has a similar organizational structure. Administrative regions are determined primarily by the boundaries of states composing a region.

Information Flow and Authority

Each position within an organization is assigned a certain amount of authority over its own function and the function of supervisees in a lower level. Authority is delegated downward from upper administrative levels to lower levels in supervisory lines (Figure 5.8). Authority delegation determines the decision discretion for each position and is usually described for the position. Supervisory authority is indicated by the subordinate positions assigned in the job description or in modifications made from positions of higher authority (Figure 5.9). The chief administrative officer of an organization has the most comprehensive position in the planning and operations process. Planning, the decision process, and operations become more focused as one progresses from the top of the organizational pyramid to the bottom. The implications of decisions and operations become increasingly broad with progress up each rung of the administrative ladder.

Staff positions stand in support of line authority, but are not in the direct chain of command. Planners, advisors, and other special service positions often reside outside the chain of command in a “side-bar” support role. They respond to the requests of line authority with analyses and recommendations. They may have their own su-

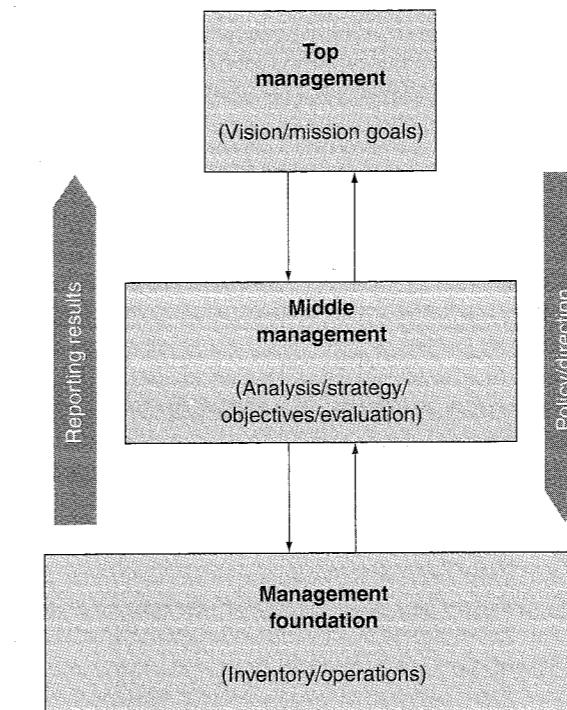


FIGURE 5.8 Information flow in a management organization. In general, policy directives and guidance flow from upper levels of management to lower levels. Information in the form of various written and oral reports with recommendations move upward from the foundational “field-level” of management.

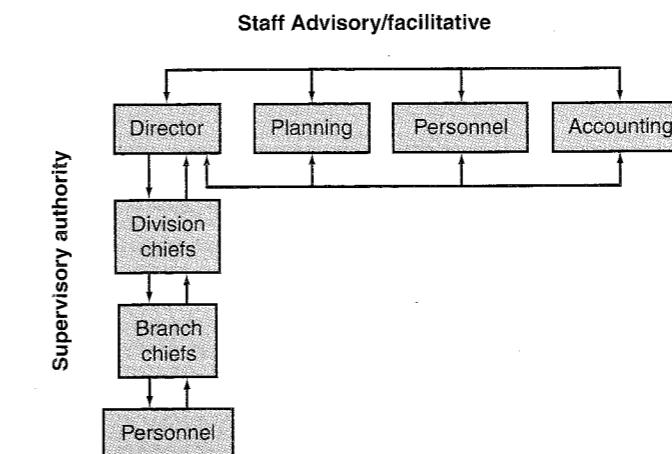


FIGURE 5.9 General lines of authority and information flow within a natural resource management organization. Levels below the Director also may have support staff with specialized skills.

pervisees outside the line of authority, but do not make command decisions that reach outside the staff unit.

Administrative structures exist to bring more cohesiveness to people operating toward the completion of a single or small set of outputs. An appropriate organization facilitates an efficient and an effective decision process leading to more desirable work outputs. The form or structure of a management organization has a lot to do with how efficiently organizations function.

Information Management

All natural resource organizations are faced with a tremendous information resource from which they need to distill relevant information for an effective decision process. Regardless of other functions, each subsystem must use, manage, and add to information needed for organizational function. The structure of a management organization facilitates an efficient communication process when form follows function. In efficient organizations, each administrative unit is a subsystem designed for information input,

CHAPTER 5 ■ Planning, Policy, and Administration

processing, and output. Input information travels "bottom-up" to the most comprehensive level of the decision process. Only information appropriate for organizational function is accepted as input at each level in the administrative ladder. The "noise" is filtered out. Reporting needs to be readable, comprehensive, to the point, and concise.

Linkages among administrative units serve as conduits for information flow upward with appropriate filtration at each level. In this way, an effective organization passes an optimum quality and quantity of information to the uppermost administrative levels. Obviously, to work well, each administrative unit must be appropriately informed about organizational priorities and about the resources and conditions that exist inside and outside the organization. Priorities and policy guidance flow top-down from the command level of the CEO.

Organizational flexibility must be counterbalanced with enough stability to sustain effective pursuit of purpose. Bureaucracy is a form of organizational arteriosclerosis that occurs when structure becomes too rigid to adapt to functional requirements. Like blood moving through stiff arteries and damaged kidneys, information flow is slowed and inappropriately filtered. In such organizations, priorities and policies change little despite dissatisfaction with organizational outputs. Bureaucracy is relatively rare in private profit-making organizations because they compete poorly and go out of business. Government agencies can persist much longer in an inflexible inefficient state—until they no longer can be tolerated and have budgets cut or are entirely eliminated or reorganized.

Networking

In the past, organizational structure controlled information flow much more than it does now. Horizontal information flow moved within the same administrative level, most often to people occupying the same common work space. Vertical information flow occurred between supervisors and supervisees within an administrative line of authority. Opportunities for information to flow obliquely and to jump levels was possible, but more limited. With the development of contemporary electronic networking, information has the potential for moving vertically, horizontally, and obliquely among workers within organizational structures. Information flow also can readily jump intermediate levels in either direction. It can also jump from organization to organization. This technically mediated freedom of information flow is a boon to integrated resource management. However, there is also more opportunity for misinformation to be passed. Whereas organizational vigilance over information flow was once more centralized, technological networking forces more individual responsibility on all personnel.

SUMMARY

Planning, policy, and administration control the functions of management systems operations. They determine the effectiveness and efficiency with which all organizations pursue their purposes. Whether business, government, or advocacy groups, organizations operate based on principles held in common. Most organizations function to benefit humanity in some way. They use a variety of strategies to determine the most appropriate distribution of benefits among members of society. Evaluation of result is necessary for determining the degree of success and for improving the efficiency and effectiveness of the management process.

In an era of increasing complexity, many organizations divide functions into program and project subsystems. They integrate activities across divisions within organizations and across organizations. Both private and public organizations have concentrated more on their internal environment in the past than will be necessary in the future. Advances in communications and computing technology have enhanced possibilities for more effective integration. Among the biggest challenges are

determining and executing that level of organizational integration needed for maximum sustained benefit to society.

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