THE FEDERAL ROLE IN NATURAL RESOURCE MANAGEMENT

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My purpose is to set the stage for subsequent sessions on the federal role in some specific natural resource management issues: land use, soil and water conservation, and water resources development. In each of these areas, resource allocation decisions are ultimately made by a myriad of private firms and individuals (farmers, real estate developers, home buyers, irrigators, and those active in the market for land as a capital asset). These decisions, however, are influenced by the rules and regulations, taxes, public works, and public investments that emanate from the various branches and levels of government. Government has considerable power to influence the course of natural resource allocation and the well-being of everyone who has a stake in the way natural resources are used, developed and conserved.

The Role of Government

It is appropriate to start by considering the role of government, in general, before moving to the question of the federal role, which is at least in part a matter of jurisdiction among the levels of government. We briefly consider the implications of three models of the government role, two of them overtly normative and the third somewhat more descriptive in orientation.

Normative Models

a) The Public Interest, Market Failure Model

This is the model which was presented as the conventional wisdom in our formative years. It has a long intellectual history. Public interest concepts of government are rooted in Rousseau's version of the social contract. The market failure economics of Marshall and Pigou, the compensation test logic of Hicks and Kaldor, and the social welfare function concept of Bergson and Samuelson helped to make the model respectable among economists. With a considerable assist from John R. Commons, whose institutionalism was only part-ways compatible with neo-classical market failure conceptions, many of its basic premises became embedded in the New Deal politics which is only recently losing the momentum it began to gather in the 1930s.

The basic premises of the public interest, market failure model are:

- The political perfectability of man. Once human beings are freed from essentially evil institutions, and granted a genuine political equality, the influence of pure selfishness will wane and the true public interest will be revealed in the political process.

- The basic problem concerning government is not so much to limit its size and scope as to insure that it remains responsive to the public interest. To promote the public interest over the interests of a powerful but selfish few, some considerable regulation of individual activities for the "public health, welfare, safety, and morals" may be justified. Programs to promote economic activity, to rectify market failure (i.e., to internalize externalities and to provide public goods and merit goods), and to promote equality of economic opportunity, may all be seen as enhancing the general welfare and thus within the purview of government.

- Continued vigilance and effort are necessary to ensure that government remains responsive to the public interest. A broad array of legislatures, committees, courts, and tribunals, and an increasingly professional and planning-oriented civil service are necessary, to ensure the continued dominance of public interests over private interests in the political sphere.

- Given that the political sector will reveal the public interest, the administrative sector must adhere to an ethos that emphasizes the total submergence of the manager's personal objectives in favor of the politically-revealed public interest and the objective, scientific facts of the situation. The managers are true professionals, neither self-interested nor politicized. They seek objective facts from researchers and educators, who are obliged to tell them all the facts and nothing but the facts. Thus armed, the managers allocate, invest, and regulate in the public interest.

- A large and important role remains for markets, but it is always legitimate for government to second-guess market behaviors and outcomes. Fine-tuning of market behaviors through taxation, public investment, and regulation is perfectly legitimate and often desirable.

b) Individualism and the Minimal State

Recently, a slightly older normative model of government has been making a spirited comeback. Under this model, all fundamental rights are assigned to the individual. Government is seen as a necessary evil: necessary only because the alternative, anarchy, is even more evil. The basic premises of this model may be listed:

• Since society is merely a human artifact, all rights initially reside with the individual. To avoid anarchy, individuals would rationally delegate some rights to a central authority, i.e., government.

• The citizens may legitimately resist and overthrow any government which violates the public trust, that is, acts beyond its authority legitimately derived from the people. Following overthrow, a new government must be installed.

• The rationale for the overthrow of governments which exceed their authority logically implies strict limits to the authority of any government. Individuals are guaranteed some fundamental rights and a government invading or denying these rights would exceed its rightful authority. Bills-of-rights are the keystone to a proper relationship between the individual and governmental authority.

• To the maximum extent feasible, the relationships among individuals and between the individual and government must be governed by the principal of Pareto-safety, i.e., that change which damages any individual is *ipso facto* undesirable. Thus the individualistic tradition emphasizes voluntary exchange in the market, and unanimity in the political sphere. The cornerstone of liberty is a set of complete, carefully specified, secure, enforceable, and transferable rights. The allocation of resources and the distribution of rewards are optimized under a complete system of private property rights.

• The very concept of a public interest is greeted with deep suspicion. The basic behavioral premise is not the perfectability of mankind but unquenchable human selfishness. Desirable institutions, therefore, are not those which appeal to behaviors quite alien to human nature, but those which get the most social mileage from purely selfish behavior.

• The concept of market failure is greeted with considerable skepticism. In this respect, the research program which was initiated by the *Journal of Law and Economics* a quarter century ago has enjoyed considerable success. Market-like behaviors have been identified in many kinds of situations where markets were previously thought not to exist. It has been established that externality is a fundamentally trivial concept: externality alone cannot persist; it can persist when accompanied by nonexclusiveness and/or nonrivalry, but these latter two concepts are enough to explain the problem without recourse to the concept of externality. Comparative case studies have been completed, showing the superior performance of organizational structures where rights are well defined at the individual level.

• Nonexclusiveness and nonrivalry present persistent problems for the individualists, as does optimal taxation. The individualist solution to just about every problem is to assign exclusive property rights. However, there are cases where the costs of exclusions are too high, or its ideological connotations too offensive to make this solution workable. In such cases, individualists tend to fight rear-guard actions, challenging the notion of market failure itself. They argue that demonstrations of cases in which markets fail to optimize are simply not conclusive: the case for a government role can only be based on proof that government would do better. For nonrivalry problems (i.e., public goods), some progress has been made in defining incentive-compatible mechanisms: devices which simultaneously determine the optimal amount of a nonrival good and optimal individual taxes. This approach is, of course, consistent with individualist concepts of optimal taxation derived from Wicksell and Lindahl.

A Descriptive Model: The Diffuse Public Decision Process

Consider a society of individuals, seeking to satisfy a variety of diverse objectives by allocating their endowments according to maximizing principles. This leads to the diffuse model of the public policy decision process, the basic elements of which are:

- There are many arenas in which conflicts may be resolved. These include the legislature, the executive branch, the judiciary, and the marketplace.

- Individuals have diverse endowments (including income, wealth, property, professional reputations, personal standing in the community, native talent, acquired skills, and time) and seek to allocate these across the various arenas so as to maximize their own well-being. Different endowments are differentially effective in different arenas. Maximizing behavior includes both maximizing within the system and maximizing by attempting to change the system. Self-interested behavior includes coalition formation in those arenas where collective modes of choice predominate.

- Even those who operate the various public decision institutions pursue their own self-interest. A basic problem for the design of any institution is that of establishing incentives which direct the efforts of personnel toward the institutional objectives.

- Public decisions are often not final in any ultimate sense. That is, they can often be reversed at some tolerable cost (notable exceptions, of course, include the irreversible destruction of natural systems). So, those disappointed by a decision will often continue the battle, seeking its reversal in the same or different arenas.

This model yields a variety of implications. It encourages some skepticism about important aspects of the more normative models of government. In common with the individualistic model, it tends to undermine the notion of an identifiable public interest. On the other hand, its emphasis on the endogeneity of government tends to undermine the "government interference" rhetoric of individualists. Finally, it casts doubt on the traditional model of the proper relationship between the "decision maker" and the scientific or technical "expert". Given the multiplicity of conflict resolution arenas, the open process in which agendas are set and conflicts are assigned among arenas, the lack of finality in many decisions, and the wide range of self-interested participants in the process, the notion of "the public policy decision maker" loses its credibility.

This model, itself, makes few claims of optimality. Public interest theorists tend to see their worst fears of the free play of selfishness in government fulfilled in this model. Individualists find little comfort in a process in which selfish interests seek to form majority coalitions in order to use coercive institutions in ways beneficial to themselves. The individualistic scholar James Buchanan, for example, has recently been much concerned with developing the case for additional constitutional restraints on majority processes in government generally and in taxation issues in particular.

This diffuse model assigns a crucial role to information. Information is at once cognitive and suggestive: even the most innocuous "simple fact", when incorporated in a more general model of the relevant system and interpreted in the light of an individual goal structure suggests a course of action for someone. Information comes in various kinds and various qualities. Information is generated and released into the system and critiqued, tested, and evaluated by those who receive it. It may be attacked by those who believe it inaccurate, but also those who consider it destructive to their own objectives. Eventually, that information which survives criticism influences the outcome of the public decision process.

In sharp contrast to the public interest model — with its technical experts providing objective, factual information, on demand, to the decision maker who decides in the public interest — the diffuse model looks to open flows of information and unrestrained critical processes for essential safeguards in a governmental environment which is otherwise open to abuse.

Researchers and extension educators, according to this model, serve a vital public role in generating and disseminating the information which permits enlightened pursuit of individual and group self-interest. A clear corollary is the responsibility of researchers and extension educators for promoting the openness of information channels and thus reducing the information costs facing all the various participants in the diffuse policy process.

The Federal Role

Adherents of the public interest, market failure model tend to promote a major federal role in natural resource management on the following grounds:

- The logical basis of federation implies that many public interests are in fact national interests. Thus, for example, the disposition of public lands west of the Rocky Mountains and in Alaska is a legitimate interest to the national public.

• Market failures such as air and water pollution, damage from surface mining, and even the erosion of farmland soils seldom confine themselves to state and local government boundaries. More often, they manifest themselves in geographical entities such as watersheds and airsheds, which have no respect for political subdivisions. Thus, these kinds of market failures require a national response.

• State and local governments confronting large and mobile firms are in a classic prisoner's dilemma. Without concerted and coordinated action by all governments simultaneously, large firms can effectively play off one regional government against the others, by threatening to relocate whenever a local jurisdiction attempts to pursue the public interest by taxing or regulating their activites.

• Many state and local governments, with their hick legislators and their small underpaid professional staffs are no match for the interests and the lobbyists. The federal government, it is claimed, is in a much better position to defend the public against special interests.

On the other hand, philosophical individualists prefer in principle not only to minimize the size and scope of government in total, but also to assign each governmental responsibility to the smallest unit (in geographical and population terms) of government that can possibly handle it. If local populations are more homogeneous than the national population, they reason, individuals are more likely in aggregate to find satisfaction in the outcome of local rather than national democratic processes.

They further argue that for many reasons — including recent improvements in funding and staffing of state and local governments, and the salutary effects of Supreme Court decisions in the 1960s eliminating the disproportionate influence of rural voters and opening the democratic process to minorities — the old criticisms of state and local government are no longer valid. State and local governments are seen as sources not so much of weakness but of diversity, a highly desirable commodity in the eyes of individualists.

But, Does the Process Work?

Listening to our public interest theorists and our philosophical individualists, we hear that state and local governments are unable to protect their citizens, while federal governments all too often serve as devices through which distant do-gooders arrogantly impose their will upon recalcitrant individuals and communities. After participating in two years of discussions of surface mining and land use issues, as a member of a National Academy of Sciences committee, the dilemma became all too clear to me. Local governments had failed entirely to deal with the sometimes drastic damage that strip mining visits on local communities and environments. State governments' performance had been spotty, at best. A considerable constituency existed for strong federal regulation of surface mining and reclamation. The federal Act of 1977 was passed and signed into law. It was a long and detailed document, aimed principally at regulation through design standards. A new federal agency was created and instructed to develop detailed regulations consistent with the legislation. States were required to accept temporary federal authority in surface mine regulation, or to forego certain sources of federal monies. Eventually, administration would be turned over to those state governments which enacted similar legislation and demonstrated a capacity to enforce it.

No one, it seemed, was happy with the federal Act. Environmentalists fretted that certain provisions were too lenient and that enforcement might not be adequate. Mine operators found the regulations enormously extensive and detailed, yet insufficiently flexible to meet the wide variety of local conditions under which coal is surface mined. Much of the scientific and technical community was sympathetic with their position.

In the committee's discussions, I found myself in an awkward position. Dilemma #1: Could I support the basic concepts of the federal Act? Individualism, under the pre-existing structure of institutions, seemed more nearly the problem than the solution. But, would a regulatory approach at the national level do better?

Dilemma #2: What about the need for flexibility to adapt mining and reclamation procedures to a local conditions? As an economist well-versed in the problems of regulation in general and design standards in particular, it was difficult to defend the Act as written. On the other hand, the prevailing notion of flexibility seemed to entail local mine operators appealing to an agency-established committee of technical experts for relief from particular provisions of the Act.

To me it seemed like that kind of arrangement would lead all too often to one particular group of local interests appealing to Washington for complicity in selling other groups of local interests down the river. In other words, I too was in favor of flexibility, buy my idea of flexibility involved genuine local control rather than distant groups of experts making judgments with respect to local conditions. Moreover, I was highly skeptical of the notion that local interests would be unanimous about the need for flexibility to meet local conditions. More likely, divergent local interests would appeal to a central government to give them what they want. There was simply no incentive for the kind of negotiations, at the local level, which would lead to a genuine consensus as to the need for local flexibility.

This, more than anything, seems to me to be the missing link in natural resources policy. Existing institutions encourage all participants in the diffuse public policy process to seek uncompensated change. That is, participants attempt to form coalitions sufficiently powerful to take what they want, over the protests of disappointed minorities. On the other hand, the single most desirable attribute of the market is that it is an instrument through which to pursue compensated change. Markets promote efficiency not by taking resources from the inefficient and giving them to the efficient, but by permitting the efficient to acquire those resources simultaneously compensating the inefficent for their loss. The efficiency-inducing change occurs with the consent of all parties.

Currently, government attempts to influence the allocation of natural resources rely on taxation, regulation, public investment, and ownership, and management of those resources. All of these methods present one or another interest group with at least the hope of getting something for nothing, while threatening others with uncompensated injury. I feel strongly that there is a real need for ingenious innovations in institutional design, of a type which would encourage the building of genuine consensus about the disposition of natural and environmental resources through mechanisms of compensated change. Compensation not only brings losers into a genuine consensus for change, but also automatically eliminates many proposals for change, which are unable to generate benefits sufficient to provide for compensation of losers.

The issue of the role for the federal government is really the more general issue of institutional design. Surely, there is much to discuss and to debate in the assignment of authority among federal, state, and local governments. Nevertheless, in many natural resource and environmental issues, I suspect that adequate answers will never be found if the question is defined as simply one of authority and jurisdiction.

The institutional devices which our past history has bequeathed are a curious admixture of tools appropriate to the public interest and individualist doctrines. Not only are both of these doctrines inadequate, but they are mutually inconsistent in many important ways. An *ad hoc* collection of devices from both traditions offers little hope of genuine progress beyond the point where we are now. What is needed, it seems to me, is genuine innovation in the direction of consensus building devices based on the notion of compensated change.

Scope for Change

Compensated change requires the vesting of some meaningful rights in the *status quo:* some kind of property rights to be traded, or some right of consent to be withheld in the event that the proposed change (including its compensation provisions) is unacceptable. This much is thoroughly individualistic. However, the pervasiveness of nonexclusiveness and nonrivalry in natural resource and environmental management issues literally requires some kind of collective response. Can meaningful rights be established at the district or community level? I think that might be possible.

It would seem desirable for such rights to be established simultaneously, all across the nation. That would most likely involve the federal government in establishing such rights. Thereafter, however, the trading of local rights or the withholding of local consent would be a purely local decision.

While this kind of innovation would change the shape and perhaps the size of government institutions, an important role for government would remain. Beyond the initial assignment of rights, government would be needed to ratify and enforce the *status quo* and any subsequent agreements to reassign rights. Further, some aspects of the local governing apparatus may need to be expanded, as more of the significant decisions are negotiated and resolved first within the local community and then between the community and those (often "outsiders") seeking change.

Some First Steps

As one watches the unfolding of developments in the governmental role in resource and environmental policy, one observes various changes which are at least somewhat in the spirit promoted here. First steps are usually a little tentative, as they were for example, in the deregulation of interstate transportation. Nevertheless, if the example of commercial aviation has any more general relevance, one may be hopeful that the experience with first steps will provide positive reinforcement for the institutional innovators.

In water resources development, recent emphasis on user charges and state and local cost-sharing is promising. While cost-sharing proposals are still timid (10 percent cost-sharing was proposed by the Carter administration, while a figure of 35 percent is receiving discussion within the Reagan administration) and user charges do not always cover the costs of service, these proposals have the potential to revolutionize the politics of water. The old "something for nothing" atmosphere in which water resources developments were proposed seems destined for change.

The "windfalls and wipe-outs" atmosphere which dominated public decisions about land use controls can be transformed by markets in development rights. The right of local communities (in most states) to control land use via zoning can be used to determine which local geographic areas are to be subject to development. The establishment and subsequent transfer of development rights serves to distribute the proceeds from changes in land use among all landowners, rewarding those whose land is retained in desired current uses as well as those whose land changes use. Again, this tends to transform the political atmosphere in which land use decisions are made.

Recent U.S. Environmental Protection Agency innovations in air pollution control policy, e.g., "offsets, banks, and bubbles", have considerable potential for using market forces to gain efficiencies and cost savings in emissions control. Permissable levels of total emissions are set in traditional regulatory processes (that, too, could conceivably be changed given sufficiently innovative leadership), but offsets permit some trading of emission control responsibilities among established polluters and new or expanding firms which might otherwise be denied permission to operate; banks permit intertemporal trading of emissions control; and bubbles allow high-cost abaters to continue pollution so long as nearby low-cost abaters reduce emissions at least enough to make up the difference.

Interestingly enough, not all of the innovation in air pollution control is confined to federal agencies. Jefferson County, KY (which includes Louisville and most of its suburbs), reacting to USEPA pressure to improve ambient air quality, has proposed a set of arrangements which include some trading of pollution control responsibilities among firms and sectors, so as to permit concurrent emissions reduction and economic development.

Not all that is currently happening in natural resource and environmental policy is promising. One looks in vain for a spirit of innovation in soil conservation policy. The current administration has surprised some by failing to make more rapid progress in the use of incentives to resolve resource and environmental conflicts. The current emphasis on benefit cost analysis of environmental regulations must be viewed with mixed feelings. In some areas, including some aspects of pollution control and the management of public lands, the old pattern of coalition formation in pursuit of gains from uncompensated change continues: only the identities of those in the ascendant coalitions have changed.

Nevertheless, the positive examples I have mentioned, if viewed not as isolated events but harbingers of more pervasive change, give some basis for hope. Perhaps the old pattern of inconsistencies between public interest and individualistic institutions will eventually be broken by development of institutions which recognize the fundamentally collective nature of many resource and environmental problems while pursuing the advantages of trade and compensated change.

The diffuse model of the public decision process, with its emphasis on endogenous government, suggests that change occurs when convincing arguments for change coalesce inchoate individual dissatisfactions into majorities supporting innovate proposals. Professional public policy educators cannot (and should not) control this process. However, by clarifying the issues and promoting critical questioning attitudes, they can serve an important function in facilitating changes where traditional procedures are not satisfactory.