NATURAL RESOURCES JOURNAL

Volume 16
Issue 1 *Symposium on Public Participation in Resource Descionmaking*

Winter 1976

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William R. Burch Jr.

WHO PARTICIPATES— A SOCIOLOGICAL INTERPRETATION OF NATURAL RESOURCE DECISIONS

WILLIAM R. BURCH JR.*

As vision and action, public participation in natural resource decisions could only be spun from the peculiar web of our civilization. Unlike the eastern vision or that of tribal society, we are uniquely concerned with individuals—their free will, the interior life of their minds, and their responsibility for their own destiny.[1] Our social institutions are but elaborately conventionalized expressions of such fictions. Individuals, not institutions, fail. Poverty is not the inevitable outcome of social structure but a defect in the minds and will of the impoverished; wars, depressions, and crises are not the unanticipated consequence of innumerable decisions but are the personal responsibility of some person or persons.

Unlike the primitive or the ecologist who sees bundles of collective interconnections, where one entity dissolves into another in an endless round of mutual reactions, western societies view resources, like humans, as distinct, individual entities. They are matters of property awaiting appropriate ownership, use and responsibility. This mineral is yours, that speck of lawn is mine, and that clump of trees belongs to the parks department.

Thus, our social science starts out discussing the behavior of groups but ends with explanations based upon the inner mental processes of individuals. Yet our understanding of resources and decisions about them would seem better approached as by students of wildlife, who must learn to interpret the behavior of individual animals as elements of the herd's general survival strategy.

From this latter viewpoint, the key natural resource of any society is its population. The conservation, wise use, and improvement of this resource is universally the essential element in measuring social progress, while the structure and size of a society's population informs its capacity, power, and problems in intertrophic and intersocietal relations. For example, a society with an unusually high proportion of young males is likely to have increased productive and warfare capacity along with heightened internal strife, regardless of

*Associate Professor, Department of Forestry and Environmental Studies and Department of Sociology, Yale University, New Haven, Connecticut.

1. For a general discussion of these ideas, *see* W. Burch, Jr. Daydreams and Nightmares (1971).

the prevailing pattern or morals, culture, or psychological orientation.

In nonhuman societies there are external and internal mechanisms which serve to maintain some balance between the population and its survival necessities. Often, of course, there are ecological changes or invasions by competititve species of such magnitude that the population may be forced to migrate, to remain and adapt to the changed conditions, or fail to adapt and therefore cease to exist.

Human societies, however, are not that bound to a genetically programmed survival strategy. Yet the irony of the greater human flexibility is that the future is filled with doubt, ambiguity, and massive confusion. A dinosaur calmly munching its way to extinction seems in remarkable contrast to the frenzy of a civilization coming unglued.

In this light, public participation in natural resource decisions may be seen as part of an extinction frenzy or as a social mechanism for maintaining survival stability. I shall tend to take the latter viewpoint but without full conviction that I am correct.

It would seem that decision mechanisms for maintaining balance between a society's population and its survival resources tend to exhibit a fixity as great, if not greater, than found in those species where genetic strategies are the primary mode of adaptation. Our faith in the market or in tradition, on experts or consensus, as *the* solution merely exposes our desire for certainty. It is clear that, far from being rational strategies, these patterns are compounds of accident, fortuitous circumstance, and the cumulation of triviality, while their primary function is to maintain confidence in the existing social order.

The outline above lays out some assumptions which may provide the necessary context for caution in our ensuing discussion. In this discussion[2] my perspective on public participation in natural resource decisions will be guided by the various "how to do it" brochures of the resource agencies,[3] the recent flowering of articles in

2. Though the United States will be my reference point, I suspect that certain trends will be similar in the other new Anglo-democracies: Canada, New Zealand, and Australia. It is doubtful if the developing societies have much time for concern over public participation in natural resource decisions. Other industrial democracies, such as Britain, Japan, and France, seem more content with *noblesse oblige*, tradition, and professionalism.

3. Institute for Water Resources, U.S. Army Corps of Engineers, Public Participation in Water Resources Planning 70-77 (IWR Reprint 1970); Forest Service, U.S. Dep't. of Agriculture, Inform and Involve (1972); Regional Planning Commission for Jefferson, Orleans and St. Bernard Parishes, Dep't. of Transportation, Citizen Participation in Regional Transportation Planning (1971); Citizens' Advisory Committee on Environmental Quality, Case Studies of Environmental Action, Citizens Make the Difference (1973).

the journals of land management professions,[4] and the shared cliches of the political right and left when they contemplate "grass roots decisions" and "returning power to the people." Such a perspective is realistic enough and broad enough to speculate about two general areas–(1) what are the social factors that make participation claims possible? (2) what is the nature of those natural resources decisions which *are not* readily susceptible to increased participation?

SOCIAL STRUCTURE AND PUBLIC PARTICIPATION

Social factors affecting conservation issues seldom lend themselves to straightforward social science explanations. Conservation issues have received considerable legislative, individual, governmental, and media attention. Yet such matters seem unaffected by major differences in political systems and have low priority among the masses and their leaders. Conservation matters seem to experience neither the usual social movement patterns nor are they a central interest of elites or countervailing power centers.

Though greater social morality is alleged to be the goal and practice of socialist systems, such as China and Russia, the type and magnitude of environmental deterioration seems little better or worse there than in capitalist systems such as Japan or the United States.[5] Further, it would seem that in democratic societies ecological issues are not of central concern to the masses[6] and have even lower priority among their leaders. For example, Delbert Miller's study[7] of the visible decisionmakers in megalopolis found that their

4. O'Riordan, *Public Opinion and Environmental Quality: A Reappraisal,* 1971 J. Environment and Behavior 191-214; Irland & Vincent, *Citizen Participation in Decision Making: A Challenge for Public Land Manager,* 27 J. Range Management 182-85 (1974); Hendee, Clark, & Stankey, *A Framework for Agency Use of Public Input in Resource Decision-Making,* 29 J. Soil & Water Conservation (1974); Wengert, *Public Participation in Water Planning: A Critique of Theory, Doctrine, and Practice,* 7 Water Resources Bull. 26-32 (1971); Sargent, *Fishbowl Planning Immerses Pacific Northwest Citizens in Corps Projects,* 42 Civil Engineer 54-57 (1972); Umpleby, *Is Greater Citizen Participation in Planning Possible and Desirable,* 4 Technological Forecasting & Social Change 61-76 (1972); Wileke, *Theory and Practice of Public Participation,* 100 J. Irrigation & Drainage Division 75-87 (1974).

5. Orleans & Suttmeier, *The Mao Ethic and Environmental Quality,* 170 Science 1173-76 (1970); Goldman, *The Convergence of Environmental Disruption,* 170 Science 37-42 (1970).

6. Harry, Gale, & Hendee, *Conservation: An Upper-Middle Class Social Movement,* 1 J. of Leisure Research 246-54 (1969); A. Green, Recreation, Leisure and Politics (1964); Devall, *Conservation: An Upper-Middle Class Social Movement–A Replication,* 2 J. Leisure Research 123-26 (1970); Morrison, Hornback, & Warner, *The Environmental Movement: Some Preliminary Observations and Predictions* in Social Behavior, Natural Resources and the Environment 259-79 (W. Burch *et al.* eds. 1972); McEvoy, III, *The American Concern with Environment* in Social Behavior, Natural Resources and the Environment (W. Burch *et al.* eds. 1972).

7. D. Miller, J. Barfoot, Jr., & P. Planchon, Power and Decision Making in Megalopolis, with Special Reference to Environmental Quality Problems (1970).

interest in environmental matters was low, far below matters such as poverty, transportation, and crime and did not significantly increase even after increased media attention to environmental issues.[8]

It is difficult to imagine conservation and environmental groups as a social movement similar to the labor movement, the prohibition movement, the Townsend movement, the Civil Rights movement, and other such patterns of collective behavior. All of these other groups were seeking some agency in Washington and in the state capital to look after their interest. That is, they wanted a share of the established order. The modern environmentalists start out with the Park Service, the Fish and Wildlife Service, the Bureau of Land Management, the Soil Conservation Service, the Forest Service, the Bureau of Outdoor Recreation, the Geological Service, and numerous other old line bureaus (with their replicas at the state and local level), plus the President's Council on Environmental Quality and the Environmental Protection Agency. A "social movement" with that array of bureaucratic muscle would seem more part of the established scheme of things—not oppressed groups fit to be chased by Pinkerton guards and Alabama police dogs.

Still, neither of the two major theoretical perspectives on social power—elitist and pluralist—seems adequately to account for the power of conservation groups. Elitists, such as G. William Dumhoff,[9] C. W. Mills,[10] Floyd Hunter,[11] and T. B. Bottomore,[12] account for political outcomes as the work of a small, interlocking network of the rich and the powerful. Pluralists such as Arnold Rose[13] and Robert Dahl[14] tend to focus upon the relevant leaders concerned with a specific issue. They posit a diffuse and shifting power structure which varies from issue to issue. It is difficult to imagine elites pausing in their weighty deliberations to save the trumpeter swan, just as it is difficult to see ethnic, religious, and economic groups, mobilizing to preserve a fragile forest glen.

Recent studies by Walton,[15] Perrucci and Pilisuk,[16] and

8. Miller, *The Allocation of Priorities to Urban and Environmental Problems by Powerful Leaders and Organizations,* in Social Behavior, Natural Resources and the Environment, 306-32 (W. Burch, *et al.* eds. 1972).

9. W. Dumhoff, Who Rules America? (1967).

10. C. Mills, The Power Elite (1956).

11. F. Hunter, Top Leadership, U.S.A. (1959).

12. T. Bottomore, Elites and Society (1964).

13. A. Rose, The Power Structure: Political Process in American Society (1967).

14. Dahl, *A Critique of the Ruling Elite Model,* 52 Am. Pol. Sci. Rev. 463-69 (1958); R. Dahl, Who Governs (1957).

15. Walton, *Substance and Artifact: The Current Status of Research on Community Power Structure,* 71 Am. J. Sociology, 430-38 (1966).

16. Perrucci & Pilisuk, *Leaders and Ruling Elites: the Interorganizational Bases of Community Power,* 35 Am. Soc. Rev. 1040-57 (1970).

Kadushin,[17] and others may provide a closer accounting. For example, Perrucci and Pilisuk argue ". . . no one person commands all the resources sufficient for influencing or intimidating others to see things his way. Persons who influence decision-making, and are thus called powerful (whether in one issue or across many issues), must therefore draw upon the resources of others as well as their own in order to exercise their power."[18] The authors formulate a theoretical statement about ". . . a locus of enduring power to which both elitits and pluralists may subscribe; i.e., the resources relevant to the existence of power are dispersed and reside in the inter-organizational connections that may be mobilized in specific situations, particularly dealing with allocation of scarce values."[19] In their study of a small Midwestern city Perrucci and Pilisuk found a power elite which was not interested or involved in every community decision. Yet in major policy conflicts, only this elite was able to mobilize the actual power, common interests, and social ties which assure an "outcome favorable to its interests."

From such a perspective, conservation issues might be seen as cutting across a variety of power centers, none of which is centrally interested nor centrally opposed to conservation issues. Though traditional conservation issues are often strongly resisted by local business groups, they are seldom seen as threatening established national economic and political elites. Indeed, along with the arts and humanities, parkland and conservation issues have long furnished old wealth "notables"[20] appropriate locales to demonstrate their taste and sensibility. Further, many conservation acts, such as the federal forest reserves, aided the efficiency and stability of corporate enterprise.[21] Other conservation acts, such as solid waste management or air and water control systems, can provide significant opportunities for new business and profits.[22] Further, most social-

17. Kadushin, *Power, Influence and Social Circles: A New Methodology for Studying Opinion Makers*, 33 Am. Soc. Rev. 685-99 (1968); Kadushin, *The Friends and Supporters of Psychotherapy: On Social Circles in Urban Life*, 31 Am. Soc. Rev. 786-802 (1966); Kadushin (trans), *Social Circles and National Power* (no date).

18. Perucci & Pilisuk, *supra* note 16.

19. *Id.* at 1042.

20. Dahl's terminology for those persons of distinguished families who no longer wield top economic and political power.

21. S. Hays, Conservation and the Gospel of Efficiency (1959); G. Kolko, The Triumph of Conservatism (1967); A. Ekirch, Man and Nature in America (1963).

22. For example, the planning of Connecticut's new solid waste program was most actively sought by several major corporations, with General Electric eventually winning the contract. Regional junkmen, whose local experience was not solicited, have claimed that the G.E. program now being implemented will extract tremendous economic and environmental costs. Apparently the erratic nature of solid waste production and distribution will need to be increased and regulated to maintain the national flow calculations of the G.E. system.

ization of land has taken place in remote, sparsely-settled, and relatively impoverished colonial regions–West Virginia, Montana, Kenya, and the Belgian Congo (Zaire). Consequently, it has been fairly easy to establish a national park or forest in Wyoming, but nearly impossible to do so in New York or Connecticut though equally desirable tracts of open space are available in these states.

Finally, studies by Selznick,[23] Hardin,[24] Foss,[25] Cooley,[26] and others have demonstrated how laws and agencies designed to protect and conserve ecosystems tend to become coopted by the relevant circle of power. The unintended consequence is that conservation laws often do more to conserve the existing distribution of power than to conserve ecosystems.

Therefore, it is not surprising that the "maximum feasible participation" intent of the Economic Opportunity Act, which was to aid the urban poor in claiming their rights, would soon be seen as "maximum feasible misunderstanding."[27] Angry Blacks shouting "All power to the people" or masses of unwashed hippies demanding "participatory democracy" in university administration and teaching are quite different from the ordered cadences of wilderness hearings, citizen advisory boards, and other forms of "public participation" found in conservation issues.

PARTICIPATION–SELECTIVE AND CONFORMIST

Three factors make public participation in natural resource decision an activity for the select few who accept the established rules. The first is that conservation issues and their supporters have always been part of the existing system of authority. They have been so because they cut across the central concerns of various local, military, and corporate power centers. They speak to issues favored by the old wealth notables–aesthetic sensitivity, patriotic nostalgia, and good taste. And in the past, implementation of conservation practices has aided rather than challenged the existing power structure.

Secondly, this older tradition is joined not by the proletariat but by a salariat (salaried, middle class without access to means of production) with interests more in line with the notables than with the Horatio Alger working class ethnics and members of the New Wealth. The salariat provides cadres most likely to join voluntary associa-

23. P. Selznick, T.V.A. and the Grass Roots (1966).
24. C. Hardin, Food and Fiber in the Nation's Politics (1967).
25. P. Foss, Politics and Grass (1960a); P. Foss, The Grazing Fee Dilemma (1960b).
26. R. Cooley, Politics and Conservation (1963).
27. J. Donovan, the Politics of Poverty (1967); D. Moynihan, Maximum Feasible Misunderstanding (1969).

tions, to understand the rules of the game which guide government agencies, to speak the same language as the public bureaucrats, to have higher expectations about government performance, and to attach greater importance to life style than to level of living issues.

Between 1950 and 1970, there were in the United States significant increases in salaried positions. Professionals, technical and kindred workers went from 8.7 per cent of employed persons to 14.2, or a 5.5 per cent increase. Managers, officials, and proprietors had 1.6 per cent change, while clerical and kindred workers increased 5.1 per cent. All other occupational categories, except service workers, decreased in size.[28]

In this same period the per cent of persons 25 years old and over with four years or more of college completed went from 6.0 to 12.0 by 1972. More importantly, in the age grades 25-29, the per cent went from 7.5 in 1950 to 19.0 by 1972.[29] The importance of these trends is that this emerging class of youthful, salaried, college educated persons are those most likely to have knowledge, interest, energy, time, and income to invest in aesthetic and environmental issues. Lacking most of these resources, factory workers, truck drivers, and junkmen seldom appear at environmental hearings.

Thirdly, if there has been one consistent trend in North American life, it has been the steady attempt to remove resource and aesthetic issues from the whim of the market. Thus, forest preserve acts, municipal, county, state and federal parks, wildlife refuges, soil conservation acts, zoning regulations and contemporary wetland, agricultural protection and land use laws all reflect attempts to socialize property rights and to put resources under professional allocation, rather than allocation by commodity and real estate markets. Such acts have required further creation and expansion of new professions.

For example, federal legislation, such as the 1954 Urban Planning Assistance Act, was most beneficial to the land use planning profession. "In the early 1950s there were fewer than 250 active planning professionals in the United States; by mid-1972, there were more than 6200. Furthermore, over the same period more than 200 metropolitan planning agencies were established and some 4000 comprehensive development plans prepared."[30]

Certainly many social and biological science entrepreneurs have not missed the economic possibilities for them of the Environmental

28. Office of Budget & Management, Social Indicators 143 (1973).

29. *Id.* at 107.

30. Carter, *Land Use Law (I): Congress On Verge of a Modest Beginning*, 182 Science 691-97 (1973).

Impact Statement requirement of the National Environmental Policy Act (NEPA). As a result of this act one can safely predict a steady growth rate in the demand for ecologists and social ecologists similar to the trend exhibited by the planners.[31]

Thus, legislative interest in removing resource issues from the marketplace also has the effect of creating new professional cadres who have an interest in discovering new resource problems and in creating new constituencies to stabilize their professional position. The professionals, therefore, develop a stake in encouraging certain forms of public participation. NEPA not only encourages the creation of new professions, but also provides an elaborate and manpower demanding system of surveillance of the old professions created in earlier cycles of environmental legislation.

In sum, public participation in natural resource management decisions has been a continuing fact since the initial attempts to remove many resource decisions from the market. And because conservationists and resource agency administrators speak the same language, have similar levels of education, and indeed often come from the same school, most of the discussions are over changes in the rules. This shared attitude is in stark contrast to participation in urban resource decisions by the poor, where few of the players come from the same social strata, ethnic, religious, or educational group, and only incidentally speak the same language. And they are not just fiddling with the rules but are talking about entirely different games.[32]

The predominant participation of middle class persons in conservation issues is a reasonable fact of social life, rather than a matter of moral concern. Middle class pressure to prohibit commodity development in a far-western wilderness may not have a positive effect upon the life of the urban poor, but it certainly does not have a negative effect. Conservation, like most social reform in the United States, is the property of the middle class. It seems more than fair to say that free schooling, free parks, fair housing, fair employment, school integration, toleration for minority views, freedom of the press, justice for the accused, day care centers, and so forth have been visions of the middle classes, not the masses.[33]

31. The Institute of Ecology has a major program in improving the quality of the E.I.S., while the American Sociological Association has just discovered the environment with specially appointed committees and national convention sessions devoted to the sociologist's role in preparing environmental impact statements.

32. M. Meyerson & E. Banfield, Politics, Planning and the Public Interest (1955); *Citizen Action in Model Cities and CAP Programs: Case Studies and Evaluation,* 33 Pub. Ad. Rev. (1972); M. Mogulof, Citizen Participation: A Review and Commentary on Federal Policies and Practices (1970).

33. S. Lipset, Political Man (1959). *See also* the general theory developed in G. Lenski, Power and Privilege (1966).

The paternalistic, self-perpetuating committee which manages the New Haven Green has hardly oppressed the poor by not permitting any of the business "improvements" proposed over the past 200 years. The temporary gains to certain business and real estate groups might have brought some marginal increases in jobs. But in the long run with displacement, decay, and escape to the suburbs, such "improvements" would actually have left the area a greater burden to be renewed, rather than serving as a focus for renewal. This committee's lack of "progress" means that today's poor have a pleasant place to eat lunch, to wait for the bus, to play checkers, to gossip and play—all of which are far more tangible present benefits than would emerge from past gains for some other classes.

SOME NATURAL RESOURCES CLOSED TO WIDER PARTICIPATION

The victories of conservation are seldom consumated. To be part of the authority system, to have the support of a rising class, and to have professionals with a stake in one's support still leaves many resource decisions out of range. Four such decision areas—population, territory, food, and energy—come to mind.

Without entering the debate as to the point when population size becomes a liability rather than an asset, we can agree that great nation status is impossible without a sizeable population. New Zealand may have a higher per capita income than India, but in world affairs the masses of India make her a power and New Zealand an interesting dominion. Certainly population size is a necessary, if not sufficient, explanation of great power status. But the size and structure of such a resource is outside democratic participation. The scale at which birth decisions are made precludes participation by those other than close kin and, even though the *culmination* of these decisions shapes the demographic pattern, the *completed* shape is beyond the control of any person. Even mortality management seems most effective in dealing with subordinate age grades—infants and the aged. The causes of mortality of youth and the middle aged—auto accidents, addictions, suicides, and wars—deplete the population resource in a manner not subject to direct participation by the public.

Another resource, territory, has similar complications. Certainly the defense of existing territory or the acquisition of new territory significantly affects a society's resource base. In modern times matters of war and peace have reached such a magnitude of speed and complexity that participation by the ultimate victims or victors seems impossible. One need but reflect upon the recent Soviet-

American confrontation in the Middle East to realize how close the world was to nuclear war and how little any of us knew; indeed, it is doubtful that our participation could have been any more meaningfully engaged. It would seem that matters of territory depend most upon fortuitous accident and the actions of a small number of persons who privately engage in systematic hypocrisy. Even the romanticized tribal society was unlikely to have provided much more participation. The pressure of consensus seems to make war always an easier option than peace.

For most of this century, most North Americans have considered food as an over-abundant natural resource, whether in the form of too many calories in their diet or too much government wheat rotting in storage. But food is now a greater export earner for the United States than is its manufacturing. There are no more surplus grains, while the "green revolution" seems unlikely to meet its expectations.[34] And this occurs while drought in Africa and worldwide population growth accelerate demand for food.

The food of Western Europe, Canada, United States, Russia, Australia, and New Zealand might possibly avert a worldwide famine. However, the complex, highly painful and revolutionary changes necessary in the domestic agriculture and land use policies of the well-fed nations, to say nothing of the radical changes needed in international systems of cooperation and distribution of food, would require a fortitude and discipline not often seen in legislative bodies, much less benign despots. And, even if possible, such solutions are likely to meet only the short run needs of the world's peoples.

It is difficult to imagine how wider public participation could deal with such massive changes. Most participation in agricultural policy, such as District Soil Conservation Boards or voluntary associations (the American Cattlemen's Association, the Grange, etc.), have sought to manage markets rather than to maximize ecological efficiency. The reasons for this seem due largely to the nature of agriculture. Even large collectives and large corporate farms find that the rationality of the factory cannot master the essential fact that farming requires man to cooperate on nature's terms. There are constraints of soil and climate which can only be partially overcome. Production starts and stops with the seasons, not by the clock. Further, unlike the factories, there are significant diminishing returns on massive inputs of energy into agricultural production.[35]

The chain between the relatively diffuse and small production

34. Committee on Resources & Man, Resources and Man (1969).

35. Hirst, *Living Off the Fuels of the Land*, 82 Nat. History 21-22 (1973). He reports that "six calories of fuel provide only one calorie of food energy."

units and the relatively diffuse and small consumption units must pass through highly concentrated and large-scale processors (where industrial rationality seems most applicable) and retail distributors of more moderate concentration and scale. Therefore, constituency formation seems more difficult than in other natural resource issues. Of necessity we are all consumers of food, with choice being fixed by custom, so that battles between vegetarians and meat eaters are seldom seen as having the clarity of choice involved in whether a given piece of land should be devoted to lumbering or grazing, or mining or recreation. That is, the point where choices about food count is not at the beginning of production but at the consumption end, where quality, nutritional value, taste, and cost are the issues which might encourage participation. For these and other reasons, public participation in agricultural policy seems likely to remain a matter for the existing political and economic decision mechanisms.

Energy systems *other than* the calories from food and their expenditure by men and animals provide the fundamental basis of industrial societies. And a central characteristic of all these systems —fossil, nuclear, thermal, solar, hydroelectric—is that they represent a Faustian bargain[36] of the energy scientists and technologists with the lay public. These complicated technological systems are joined to complex social systems which must maintain institutional stability of incredible duration through intricate mixtures of expertise, hierarchy, and chicanery. If we will accept such a social order, the promise is ever-growing affluence.

Further, most energy production and distribution systems are privately owned. In 1969, before the official energy crisis, eight oil companies ranked in the top 37 U.S. corporations for revenues, and eleven oil companies were among the 37 largest profit makers.[37] No other industry represented that kind of economic power. Indeed, not only are major manufacturing systems such as automobiles and aircraft dependent on oil, most ordinary Fiat and Ford owners are willing to sacrifice most any moral or material standard to keep the wheels rolling. Such power over ordinary persons and persons of property is unlikely to be shared voluntarily.

In terms of coal, the legislatures of both West Virginia and Kentucky have seemed unable to protect the farmer above ground, the miner beneath it, or the downstream recipients of leaching from

36. Weinberg, *Social Institutions and Nuclear Energy*, 177 Science 27-34 (1972). *See also* the excellent discussion and review of technological accidents in H. Wilcox, Moral and Social Constraints of a Bounteous, High Energy Technology: can we meet the challenge? (Second Annual Environmental Law Conference, 1973).

37. L. Foster, *The N.Y. Times Encyclopedic Almanac* 637 (1971).

mine tailings. Though many coal regions of the western United States have the advantage of being located on public land, one has no difficulty in imagining that the well-paid legal, technical, and professional staffs of the corporations will be able to outwait and overcome the delaying tactics of voluntary citizen groups. The Alaska pipeline issue seems the typical case, where public participation brought some delays and considerable improvement in original plans, but did not significantly alter the original program. Thus, direct public participation in energy policy is unlikely because the necessary information is either unavailable, too technical, or too much the private property of powerful organizations. Further, the distance between the raw material supply and the final energy consumer is too great. For example, the costs of environmental protection in the Appalachian coal field are likely to become transferred as a significant financial burden for the poor of the far away eastern cities. Oil is even further distanced because a significant amount of the world supply is controlled by OPEC (Organization of Petroleum Exporting Countries), a singular collection of nations whose governments universally place low value on public participation, domestic or foreign.

Unlike coal and petroleum, hydroelectric and nuclear power have been somewhat more susceptible to citizen delaying actions. The Corps of Engineers, the Energy Research and Development Agency, the Bonneville Power Administration, the Bureau of Reclamation, and the T.V.A. are all federal agencies with tremendous power, but all have been more susceptible to public control than organizations such as Standard Oil of New Jersey. And with NEPA, there are further procedures for delaying and modifying certain government projects. Even Consolidated Edison's private enterprise effort to build a pumped storage project at Storm King Mountain on the Hudson River has been considerably delayed because the Federal Power Commission must approve the project. Significantly, however, hydroelectric power is the least important source of energy, supplying only about 17 percent of the United States' electricity.

In short, then, where there is a tradition of public management, such as in publicly owned lands, interstate waters or government agencies, there are legal institutions available to press for further public participation. However, well over half of the energy sources will remain controlled by private enterprise, and there is no precedent for disclosing the information necessary for participation. Further, even in those areas where participation has some precedent, the complexity of operation and policy decision often seems beyond the expert, much less the educated, concerned citizen. Thus, all projections estimate that nuclear power will become a more and

more important source of electrical energy. But the proper siting, safety controls, waste disposal practices, human tolerance levels, and security threats remain unsettled matters.

Fundamentally we are caught in a situation where most major sources of energy are controlled by powerful social units with no social, legal, economic, or political precedent for public exposure and participation, and we remain completely dependent upon the technocrats who conjure up the large amounts of per capita kilowatts which seem essential for even moderably affluent life styles. Our Faustian bargain is complete.

Thus, four essential areas of natural resource decisions seem effectively closed to direct public participation. Population size and structure remain closed because such matters represent the cumulation of numerous trivial decisions, none of which is directly affected by any other. The defense and acquisition of territory, which in our era is always near to mutually reciprocal annihilation, is a resource decision dependent upon diplomacy. (And diplomacy has always seemed to require a moralistic front and a compromising rear.) The nature of production, distribution, and consumption in agriculture leaves the points where participation is necessary isolated from the points where decisions can be made. And the technical complexity and patterns of ownership in energy systems allow little direct participation by those who are most affected by the decisions.

CONCLUSION

In the preceding sections I have explored how social structure and natural resources interrelate. We treat resources as private, individual entities. Yet they, like us, are but a temporary convergence of mutually reinforcing networks of interaction. Societies tend to assume hierarchical forms, and those adversaries and issues which accept the general legitimacy of those forms are most likely to participate in the reshaping of the forms. Further, there are some important resources which exhibit organizational patterns of such a nature as to minimize wider participation.

Public participation should be seen as a means for gaining better accountability from our social institutions and a way in which new adversaries may gain standing. In most cases our interest is in having decisions which both maintain the resource and efficiently serve the people. Often these interests collide, and in such choices the short run advantage usually goes to the people. Consequently, we need to tinker constantly to see that the right allocation mechanism is assigned to the appropriate resource. It would seem that the more

complex a society, the greater the proportion of its time and energy are spent in tinkering simply to maintain it in a similar position.

Finally, there are many resource decisions where it is enough to know that things *work*. We want to know that the garbage will be picked up on certain days, and when it isn't, we want to know whom to call to see that it is. It is such seemingly trivial matters which maintain our faith in the reasonableness of our society. Students of public life might find the study of life quality issues such as the social organization of garbage, sewage, and security the most effective way for giving power to the people.