

Public Participation and Sustainable Development: Counting the Costs and Benefits

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I. INTRODUCTION

The "participatory principle" embodies the idea that the "gap" between executive decisions and the "natural resource" needs of individuals, households and communities can be overcome by consulting with the people who actually use the natural resources, thus improving natural resource management. Receiving widespread endorsement during and since the 1992 Earth Summit, public participation has become something of a prerequisite for sustainable natural resource management (Heyzer et al. 1995; Ghai and Vivian 1992).

As Brett (1996) argues, however, proponents of the participatory ideal have a tendency to overstate the benefits, and understate the costs, of inviting individuals to have a say in collective pursuits. Specifically, the theoretical relationship between sustainable development and public participation is far from clear, creating confusion (for participants and policy makers alike) about the conditions under which individuals can take part in collective decisions. A central aim of this article, then, is to explore the theoretical relationship between public participation and sustainable development, placing particular emphasis on the ways in which consultation and communication encourage individuals to maintain watershed resources.

II. OPEN-ACCESS RESOURCES AND COLLECTIVE DILEMMAS

A central challenge in encouraging individuals to conserve and maintain water resources reflects both the nature of "open-access" resources and a very basic assumption about human motivation. As Boyce (1987: 287) observes, open-access water resources are frustratingly difficult to maintain because they are often exceedingly easy to use, providing vast opportunities to extract benefits without bearing costs (i.e., to maximize rent), which results in the transfer of negative externalities to "downstream" users.¹

Common property resources (CPRs) differ from open-access resources in the sense that they have rules governing who can or cannot use them (Bromley 1992: 4). They are common in the sense that the costs of exclusion are often too great for one party to bear and utilization can create social costs. Common pool dilemmas arise when the rules that exist are either designed or implemented ineffectively (Ostrom 1990; Mearns 1996; Bromley 1992; Ostrom et al. 1993).

At the heart of open-access and common pool dilemmas lies a problematic relationship between natural resources and the ways in which individuals pursue livelihood needs.² In so far as individuals possess competing preferences for natural resources, the pursuit of livelihoods constitutes a significant collective dilemma. A number of factors underlie this dilemma. First, like any other public good, open-access and common pool resources are depletable. Unlike most "humanly-devised" public goods (e.g., lamp-posts, roads, etc.), however, natural resources are subject to positive and negative feedback effects, which can affect their capacity to meet livelihood needs (Blaikie and Brookfield 1987; Pearce and Warford 1993).

This capacity depends upon two factors: vulnerability—a resource's susceptibility to environmental change, and resilience—its ability to withstand and/or recover from environmental shocks (Blaikie and Brookfield 1987: 10; Mearns 1996: 113). Renewable resources, such as trees, rivers and oxygen, are resilient in the sense that they exist within ecological systems that perpetuate their reproduction. Non-renewables, by comparison, are less resilient, and far more vulnerable, in so far as they are not easily reproduced. An important element here is that consuming renewable resources is a temporary, reversible process. Using non-renewables, however, suggests a relatively permanent,³ irreversible process (Ostrom 1990: 35).

Although they are highly depletable, non-renewable natural resources are ultimately resilient in the sense that the costs

of finding and extracting them are directly proportional to their perceived availability (Homer-Dixon 1991; Simon 1983). As Simon (1983) points out, individuals will never pump "the last barrel of oil" because the costs of finding and pumping it will always far exceed the marginal benefits of actually using it. Renewable resources (such as water) differ in the sense that they usually regenerate themselves, but the rate at which they undergo this process can vary. As a result, the information that individuals use to calculate the costs and benefits of extracting renewables tends to be less reliable than that of non-renewables (Homer-Dixon 1991). A central concern here is that individuals, lacking reliable information about quality and availability, will continue pumping or depleting open-access resources until they are literally "beyond repair" (Ostrom 1990; Homer-Dixon 1991; Flatters and Horbulyk 1995; Pearce and Warford 1993).

An important element, then, is uncertainty, and the ways in which individuals obtain information and accumulate knowledge to reduce uncertainty. Three types of uncertainty are particularly important here. One is uncertainty concerning the state of the resource - the "baseline data." As the foregoing discussion suggests, reliable information about the quality and availability of a natural resource is vital, both in terms of its ability to inform individual decisions and to change unsustainable behavior (Ostrom 1990; Pearce and Warford 1993; Thompson 1995).

Another form of uncertainty stems from our inability to formulate accurate predictions about future events. Indeed, many environmental problems are extremely difficult to address because they entail a perceptual "gap" between today's decisions and tomorrow's outcomes (Thompson 1995: 26-9). The wider the gap, evidence suggests, the more difficult it is to change current preferences and behavior (Pearce and Warford 1993; Ostrom 1990).

A final form of uncertainty relates to a lack of reliable information about the actions and intentions of other individuals (Ostrom 1990; Pearce and Warford, 1993). As noted earlier, water resources are often difficult to manage because, in the absence of effective rules and sanctions, they are easy to use and easy to deplete (Ostrom 1990: 2-7; Boyce 1987: 286). They are also difficult to monitor, creating situations in which information about the activities of other individuals is costly to obtain (Wade 1988; Ostrom 1990; Mearns 1996; Johnson 1997).

Lacking credible assurance that voluntaristic behavior will be reciprocated, individuals have few incentives to maintain open-access and/or common pool resources. Instead, individuals maximize usage of the resource, believing that others will inevitably do the same. This perpetuates Hardin's famous "tragedy of the commons" (Hardin 1968; also see Ostrom 1990; Wade 1988; Mingsarn 1995).

III. A THEORY OF PARTICIPATION

Experience suggests that individuals can avert collective "tragedies" in two particular ways. First, they can provide themselves with collective goods that increase or maintain the quality and supply of the resource. Second, they can devise institutional arrangements (rules and sanctions) that curb their demand (Mearns 1996; Bromley 1992; Ostrom 1990; Wade 1988). Both options have the potential for collective dilemmas in the sense that exclusion and information about the activities of individuals are costly. In other words, cooperating to provide collective goods and exercising restraint both constitute public goods, subject to rent seeking, free riding and political persuasion (Ostrom 1990).

Participation: Its Meaning and Merit

At a very basic level, participation implies a process by which individuals engage in some form of collective activity. Examples here would include anything from maintaining a weir to voicing one's opinion about the shape and direction of a constitution. An important assumption about participation is that those who seek to participate believe they have a stake in the outcome, for personal (Olson 1965) or altruistic reasons. Their capacity and willingness to take part, however, depends upon the rules of eligibility, which stipulate who can participate, and "time and place" conditions, which determine the nature and size of the task at hand. Both of these elements are fundamental for any form of participation, and are explored in due course.

Before doing so, however, it is important to distinguish between "consultation," which implies an activity in which individuals take part in collective decisions (e.g., advising constitutions), and "cooperation," in which individuals participate in collective activities (e.g., maintaining weirs). Cooperation, or "collective action," implies any activity in which individuals bear private costs to obtain collective benefits. Consultation, by contrast, indicates the process by which individuals decide whether and how they will undertake this activity.

Consultation, cooperation theory suggests, can promote cooperation to sustain common property resources in a number of ways. First, it provides information about "the state of the resource," enabling individuals to better calculate the costs and benefits of particular resource decisions. As noted earlier, decisions about renewable and non-renewable resources suffer from a lack of reliable information about quality and supply. In so far as it facilitates the flow of accurate

information, consultation provides a more reliable estimation of the state of the resource base. Collective action is more likely, evidence suggests, when individuals share the understanding that current activities create social and personal costs. Ostrom's analysis of water sharing arrangements in California (1990: 138), for instance, suggests that state and non-state actors were more likely to negotiate cooperative settlements when they were well-informed about the environmental and socio-economic implications of their resource-related activities.

Second, consultation transmits information about the rules of the game and individual preferences, reducing the gap between individual motivations and the costs and benefits of following or breaking a particular rule. Common property regimes break down, experience suggests, when individuals lack consistent information about social rules (i.e., rules which are assumed to apply to a particular group of individuals). Indeed, as Christensen's (1994) analysis of Thailand's water resource institutions suggests, rules are of little use when individuals (including those authorized with enforcing rules) lack information about the conditions under which they need to be followed and/or enforced.

Third, consultation reveals information about the ways in which individuals have acted in the past. In so far as experience reinforces perception, information about past behavior provides a way of binding individuals to others, and to the consequences of their actions. In so doing, it reduces one's capacity to escape the effects and implementation of social sanctions.

Finally, and perhaps most importantly, cooperation theory suggests that individuals will sustain common property resources when they believe they have a "stake" in the outcome (Bruns 1993; Mingsarn 1995; Kobkun 1996). Consultation fosters cooperation in so far as it allows individuals to advise and inform decisions about the nature and direction of collective activities (Vivian 1994; 1992). This is particularly important when the life and longevity of a common property resource (either the natural resource itself or the infrastructure which supplies or maintains it) depend upon the skills, knowledge and/or labor of the client community. Without a stake (or even an interest) in collective activities, experience suggests, individuals are unlikely to voluntarily provide their capabilities or cooperation, opting instead for conflict and resistance (Christensen 1994; Mingsarn 1995).

To the extent that it provides information about preferences, past behavior and the state of the resource, then, participation (defined as consultation) can encourage sustainable and equitable arrangements, which thrive on collective action. As Brett (1996) argues, however, participation has its limitations, which require further scrutiny.

Participation: Its Limitations and Constraints

In so far as it entails costs, participation faces serious problems of supply and demand. "Supply" here refers to the institutions ("the rules of the game") that determine whether and under what conditions individuals can participate in consultative or collective activities. "Demand," by contrast, indicates the preferences and perceived costs and benefits that motivate individuals to communicate or cooperate.

Supply Problems

Assuming that individuals want to participate in collective activities (i.e., assuming sufficient demand), institutions, the rules that individuals share and use to regulate collective behavior, represent both an obstacle to and an opportunity for effective participation. In so far as they stipulate who can or cannot take part, institutions represent an important constraint on the extent to which individuals can contribute to and reap the rewards of participatory pursuits.

First, the stipulations and sanctions that underlie particular rules may be structured in such a way that they prevent, or strongly discourage, individuals from participating in collective decisions (Ahmed 1995; Mearns 1996; Johnson 1997). Examples here would include formal and informal rules⁴ that allow "upstream" irrigators to decide allocation for themselves and for "downstream" consumers (Ostrom 1990; Ahmed 1995), or constitutional laws that restrict voting privileges (North 1990).

An important point here is that rules structure the (perceived) costs and benefits of participating in collective decisions. Assuming that one knows and understands the implications of following or failing to follow a particular rule, institutional arrangements constitute an important limitation on one's ability to "take part."

Second, institutions can discourage participation when rules are either subverted or ignored by powerful groups or individuals. As Thailand's experience suggests, participatory institutions are of little use when individuals fail to follow them (Rigg 1991;⁵ Mingsarn 1995: 5; Christensen 1994; Christensen and Areeya 1994). Thailand's National Environmental Quality Act (NEQA), for instance, stipulates that individuals can file complaints against individuals,

firms or public agencies that violate pollution or conservation statutes. The government's interpretation of these statutes, however, suggests that the burden of proof rests firmly in the hands of the injured party, effectively preventing "third parties" (such as NGOs) from taking part in the process (Kobkun 1996: 26).

Demand Problems

Implicit here is the notion that individuals want to participate in collective decisions. However, participatory endeavors often suffer from insufficient demand. Demand, in turn, depends on both the size of the task at hand and the (perceived) costs of pursuing and achieving collective goods.

One important concern here is that individuals (the poor, in particular) lack the time and/or resources to bear the costs of consultation (Brett 1996). Included here are the costs of meeting with relevant stakeholders, gathering data, developing an opinion and, in general, obtaining information about "what needs to be done," (Mearns 1996: 125; Ostrom 1990: chapters 2-4). Assuming that skills and capabilities are distributed asymmetrically, the notion that individuals have the time and resources to participate in consultative activities becomes problematic, suggesting the need for representation, which raises problems of agency and accountability (more on this below).

Second, there is the concern that public participation attenuates the decision making process. This creates problems, Brett (1996) argues, when time constraints are narrow and/or the costs of delay or misinterpretation are high. Assuming high risk, narrow time constraints and limited resources, then, inviting individuals to have an equal say in collective pursuits may be inappropriate, if not costly (see below).

Finally, in so far as individuals receive benefits from which they cannot be excluded, public participation may constitute a significant public good. A central concern here is that rules and incentives encourage individuals to free ride, creating a situation of dependency. Lacking "selective incentives,"⁶ Olson (1965: 16) asserts, individuals have little reason to bear the costs of pursuing collective goods, particularly when the number of potential beneficiaries is large.

Thailand's irrigation system is indicative. Providing resources, technologies and extension services at low or zero-cost, Thailand's central state agencies have consistently reinforced the notion that decisions about watershed resources should be taken by public officials, not the farmers who use them (Bruns 1993: 1845).

In terms of watershed management, a fundamental concern here is that dependency encourages individuals to ignore or discount the relationship between the costs and benefits of resource use and extraction. When third parties assume all (or most) of the costs of designing and maintaining common property arrangements, beneficiaries have few incentives to assume costs of their own. Thus, when demand for a particular resource exceeds supply, the existing market is incapable of absorbing the costs of maintaining the common property resource, perpetuating pumping races and resource conflicts (Flatters and Horbulyk 1995: 9; Christensen and Areeya 1994).

IV. PARTICIPATION BY SCALE

What this implies is that consultation is difficult to encourage when costs are high, or when individuals fail to internalize the costs of obtaining collective benefits. As noted earlier, cooperative theories suggest that individuals will cooperate to maintain common property resources when they are offered the opportunity to contribute to collective decisions. Assuming problems of supply and demand, however, the method by which these decisions can best be taken remains unclear.

Institutional theories suggest there are three ways in which we can address this dilemma.

The State Model

One is the "state model." A central assumption here is that government agencies possess information, knowledge and/or enforcement capabilities that enable them to deliver collective goods (e.g., public order, education) that civilians cannot provide on their own. Examples here would include disaster relief, fiscal stability and, indeed, a clean environment. Assuming they operate effectively, lines of command and jurisdictional codes ensure that public goods are delivered efficiently and consistently (Uphoff 1996).

Beyond providing public goods, governments can help sustain common property resources in a number of ways. First, given their size, taxation capabilities and monopoly on the use of force, state agencies are often well-suited for

monitoring and enforcing collective decisions. Second, their administrative and fiscal size enable governments to accumulate information and foster knowledge about prevailing ecological conditions (Uphoff 1996; Ostrom 1990). Finally, specialist knowledge and the power to force compliance provide government agencies with the means of adjudicating competing demands on scarce natural resources (Ostrom 1990).

In theory, then, government agencies have the potential to provide enforcement, information, knowledge and welfare when these goods are not otherwise forthcoming. Rarely, however, does their performance live up to these ambitious expectations (Ostrom 1990; Wade 1988; Christensen 1994; Christensen and Areeya 1994).

Four issues are particularly troubling. First, states are not omnipresent. As Wade (1988: 490) argues, public officials cannot be in all places at all times, creating vast opportunities for rent seeking and free riding. Second, although bureaucratic codes and lines of command create consistency, they also produce rigidity, encouraging interventions that are unsuitable for changing needs and conditions (Uphoff 1996; Mearns 1996; Ostrom 1990; Wade 1988). Third, as Thailand's irrigation example illustrates, excessive state paternalism can encourage over-dependence and free-riding. Finally, without institutional constraints, there is little guarantee (and indeed, little evidence) that public officials will perform their duties efficiently or effectively (Christensen 1994; Christensen and Areeya 1994).

The Liberal Response

Originally formulated as a response to this final concern, the "liberal model" attempts to reconcile the use of authoritative power with the rights and well-being of the individual. It tries to do so by shifting decision making authority from states (originally monarchs) onto individuals. One example of the liberal ideal is "the market," in which producers and consumers calculate the costs and benefits of buying or selling goods and services from which they believe they derive utility.

An important characteristic of the liberal model is that individuals are able to internalize the costs and benefits of personal decisions, and (significantly) they are free to decide. In so far as they enable individuals to internalize the costs and benefits of economic and social activity, property rights constitute an important way in which individuals can secure and protect their right to use and accumulate scarce resources. Formal or informal, property rights simply represent a claim that an individual asserts over a stream of benefits, which others (either with or without the enforcement of a third party) will agree to uphold (Bromley 1992: 4; Pearce and Warford 1993: 245). Assuming that other parties agree to respect them, property rights reduce conflict and uncertainty when they specify the conditions under which individuals can lay claim over particular resources.

Beyond its aim of protecting individuals from arbitrary and abusive power, the devolutionary ideal of the liberal model counteracts state centralization in a number of ways. First, assuming that individuals are indeed free to take their own decisions, the liberal model reduces the costs of monitoring and enforcing collective arrangements, and of meeting market demand (Uphoff 1996; Ostrom 1990). In so far as private property rights encourage them to bear the costs of their own market transactions, individuals possess strong incentives to ensure that other parties live up to their end of the bargain, and that they read and respond to market signals appropriately. Second, assuming that individuals can calculate and understand the true value of common property resources (such as trees or water), price mechanisms provide an efficient way of bringing demand in line with supply (i.e., discouraging "pumping races") (Uphoff 1996).

As Uphoff (1996) argues, however, a problem with market models is that they create, and indeed, tolerate, social costs (also see Gore 1993 for an excellent review of Sen's moral attack on the liberal model). Although private property rights encourage individuals to internalize the costs and benefits of resource decisions, they also provide incentives to shift costs onto other individuals, effectively reiterating Hardin's "tragedy of the commons." A second and related concern is that utility maximization tends to shift negative externalities onto those who can least afford to bear them, in particular the poor and politically disadvantaged (Johnson 1997; Uphoff 1996; Mearns 1996; Pearce and Warford 1993; Gore 1993; Bromley 1992).

Finally, and perhaps most importantly, evidence suggests overwhelmingly that privatizing property without first considering the environmental and socio-economic characteristics of the resource setting is a recipe for ecological disaster (Mearns 1996; Ostrom 1990; Bromley 1992). Ostrom's analysis of Canada's Atlantic fisheries (1990), for instance, suggests that private property regimes can create wide-ranging costs, for ecosystems and communities, when they disrupt pre-existing institutional arrangements and/or they ignore the ecological demands of the resource setting.

Common Pool Solutions

Recognizing and accepting the notion that markets and states are fallible, the common property model searches for a

"middle ground" on which market, state and "customary" (often defined as that which does not apply to market or state behavior) institutions can interact effectively (for seminal work, see Ostrom 1990; Bromley 1992).

With respect to CPRs, institutional theories suggest that individuals can overcome the assurance dilemma, and cooperate to protect CPRs, by designing and following rules that most closely suit the environmental and socio-economic needs of the CPR (Ostrom 1990; Wade 1988; White and Runge 1995; Mearns 1996; Bromley 1992). An important point here is that communities,⁷ as opposed to individuals or states, bear the costs and reap the rewards of stable common property regimes. Successful regimes endure, CPR theory suggests, when the costs and benefits of the institutional regime are confined to "a smallish and stable community" (Stewart 1996: 16).

A necessary condition here is "credible commitment," the expectation that pro-social behavior will be reciprocated (Ostrom 1990: 42-45; Pearce and Warford 1993: 246-47; Wade 1988: 489-90). In terms of common property resources, spatial boundaries and temporal restrictions enhance credibility and assurance by stipulating terms of exclusion, terms which are (ideally) decided, monitored and enforced by those who use the resource. A classic example here is an irrigation scheme in which farmers monitor and enforce the activities of their own counterparts. Because they are literally "next in line," the temporary inspectors have strong incentives to undertake their role effectively (Ostrom 1990: 95-6).

Given their cultural, geographic and historical specificity, customary institutions can narrow the gap between the "rules in use" and the "time and place" needs of the CPR. In so doing, they provide a more flexible and equitable response to changing environmental conditions than do pure state or market-based approaches (Uphoff 1996). For those who constitute "members," common property arrangements can generate wide-ranging benefits, which thrive and endure on participation.

In so far as they entail costs, however, community solutions also raise a number of difficult issues. One is opportunism. Assuming that skills and capabilities are distributed asymmetrically, and that monitoring and enforcement are costly, the notion that individuals have the time and resources to design and govern their own rules becomes problematic, suggesting a strong need for representation. Only when the activities of representatives are absolutely transparent, however, can a CPR work efficiently. When guardians possess specialist information and knowledge about their activities and the activities of resource users, opportunities for free riding and rent seeking arise (Ostrom et al. 1994: 326).

A second issue relates to the costs of achieving and maintaining internal autonomy. A central concern here is that the costs of initiating and sustaining institutional arrangements exceed the costs that "commoners" are either willing or able to bear. Population pressures, governments, markets and, indeed, other CPRs can place significant demands on the resource claims of "smallish and stable" communities (Ostrom 1990; Swift 1994; Mearns 1996; Uphoff 1996). Lacking external legitimacy (which often depends upon enforcement from the state), CPRs may be unwilling or unable to withstand the weight of these significant external pressures (Dan Bromley, personal communication).

V. CONCLUSIONS

As the foregoing suggests, participation is most effective when governments, individuals and communities are willing and able to recognize and internalize the costs and benefits of collective activities. In terms of natural resource management, liberal and community-based solutions appear most beneficial when the costs and benefits of resource activities are both "direct and apparent," (Kobkun Rayanakorn, personal communication). Problems arise, however, when real and perceived costs outweigh the willingness and ability to pay.

Three costs are particularly important. One is the cost of obtaining information about long-term and large-scale effects. As noted earlier, environmental dilemmas arise when individuals lack reliable information about resources and resource users. Assuming that individuals are cost-adverse, a fundamental concern here is that communities and individuals (like central states) lack the time and resources to take informed decisions about longer or larger-scale resource problems (e.g., climate change, inter-basin conflicts).

Under these conditions, state and non-state actors may need to "subsidize" the informational and administrative shortfalls of public officials, individuals and/or communities. In so far as they facilitate the exchange of valid and reliable information, government agencies, NGOs, community-based organizations, learning institutions and the media can all play an important role in helping sustain common property arrangements (White and Runge 1995: 1690; Ostrom 1990: 137-8; Uphoff 1996).⁸

A second cost relates to the need for representation. As noted earlier, direct consultation may be inappropriate for decisions that entail large-scale and/or high cost activities, raising problems of accountability and agency. Lacking perfect information about representatives, and lacking the means of delivering negative sanctions when they fail to act appropriately, participatory endeavours may create situations in which representatives are free to design and/or break the rules to suit their own particular interests.

A final cost relates to equity. Implicit in the foregoing discussion is a concern that formal rules generate institutional arrangements in which positive externalities go to those who do not bear the costs (rent seeking), and negative externalities go to those who do not enjoy the benefits (dumping). In so far as they sustain existing power structures, state, liberal and community arrangements may in fact encourage public officials, individuals and communities to transfer environmental and social costs onto other "affected parties."

Facing these situations, states may also need to structure rules and incentives in ways that encourage consultation and effective participation. First, they can stipulate and enforce institutions that require public officials, individuals and communities to provide information about the costs and benefits of particular resource activities. Second, they can provide or encourage fora through which individuals and communities can communicate these preferences, and settle their disputes. Finally, they can provide an arena of last (or next) resort to whom one can turn when local rules or rulers impede one's ability to take part.

In short, states can encourage participation, if they so choose.

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