Collective Action and Property Rights for Sustainable Development

Local-Level Public Goods and Collective Action

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In communities throughout the world people work together to provide goods and services that their governments do not provide. They build and maintain local parks, feeder roads, religious buildings, and community halls; they operate volunteer fire control groups and establish rules for local natural resource management. Sometimes local groups share responsibilities for maintaining public services, such as schools and health clinics, with their local or central governments.

Not all communities, however, provide the optimal level of local public goods. Evidence shows that not only are some public goods provided more often than others, but also that some communities mobilize themselves more easily to provide them. Given the vital importance of public goods in providing basic services necessary for alleviating poverty and in managing the local natural resource base for sustainable development, this brief offers an approach to understanding the problems communities face in providing different kinds of public goods.

WHY ARE SOME PUBLIC GOODS "EASIER" TO PROVIDE THAN OTHERS?

Even within the same community, people cooperate to provide certain public goods but not others. It is possible to explore this variability by asking, How do one individual's benefits change depending on how many other people actually contribute to a specific activity? Using game theory to examine an individual's incentives to contribute to a public good helps to highlight the exact nature of the interdependency among community members in terms of the decision to contribute or not.

This brief considers five potential incentive structures that are likely to be important empirically, although the actual number of possibilities is much greater. In the first case, every individual is better off contributing to the public good even if no others contribute. In this case, the role of the group might be only to share information and coordinate activities. Such an incentive structure might occur when there are large increasing returns to contributions in the provision of a public good. Certain pest control measures might have this structure; if each individual controls pests on his or her own farm, overall pest prevalence may drop to zero, so everyone realizes large benefits. Unfortunately, such a fortuitous incentive structure does not occur often.

In the second case, the individual may be better off contributing to the public good if no one else does, but when others contribute the individual would prefer to "free ride," or contribute nothing. This case is often referred to as a "chicken game." As in the first case, the primary role of the group is to coordinate actions among members. Coordination is particularly important if the good must be repeatedly provided and members can take turns in providing the good. Herd mobility is such an example: each herder would prefer to stay at home and avoid the costs of mobility but would rather move if others remain at home. Coordinating herd movements can lead to a socially optimal pattern of herd mobility.

In a third incentive structure, the individual might prefer to contribute to the public good if all others do but would not if no one else does—an example of an "assurance game." In this case, the role of the group is to assure each member that others will not free ride. Given the incentive structure, this case is likely to be more costly to manage than simply coordinating movements as required under a "chicken game" structure. Investments in community infrastructure sometimes have this structure, particularly when investments are discrete decisions, such as construction of a building or bridge.

In the fourth example the individual may prefer not to contribute if no one else does and also prefer to free ride if everyone else contributes—even though all members would be better off if each one contributed his or her own share. In this case, the incentive structure resembles a "prisoner's dilemma." This situation is likely to occur when returns to contributions increase but at a decreasing rate: for example, certain soil erosion control measures. Such an incentive structure may also result when returns are highly variable, as they are, for example, for investments in agroforestry techniques in regions with high climatic variability. Managing this type of incentive structure is likely to be the most costly.

Finally, it may be the case that it would be best, under existing conditions, not to provide the public good at all. In other words, social returns to a certain public good may simply be too low for it to be in the interest of the community members to provide that good.

Several key factors determining externalities and incentive structures include technological characteristics (such as the returns to scale or if the good is discrete), costs of inputs, the extent to which private goods can substitute for public goods, and the uncertainty or variability in returns from the public good. The provision of certain public goods may also affect the returns to other public goods. For instance, returns to investments in soil erosion control measures undertaken on common pastures may depend on collective action in managing use rates of those pastures. Returns to improving roads and bridges may be higher where successful pest control leads to higher marketable crop surpluses.

Finally, actions in one community may affect returns to activities elsewhere, such that groups operating across communities may be far more successful than more localized ones. Pests, fires, and water easily cross community lines and therefore require many communities to cooperate. Of course, externalities that affect large segments of the population are precisely those that give rise to government involvement. Real and effective partnerships between government agencies and

community groups can manage these externalities more successfully.

WHY ARE SOME COMMUNITIES MORE SUCCESSFUL THAN OTHERS IN PROVIDING PUBLIC GOODS?

Although the incentive structure determines in part how difficult it will be to undertake any particular collective activity, there are also characteristics of the group that determine the cost of doing so.

Any factors that enhance a group's ability to identify common goals, work together, and negotiate in good faith will enhance cooperative capacity and thus reduce the costs of undertaking collective action. Trust among members was one of the first factors to be identified. A history of successful collective action also improves chances of continuing success in an expanded set of activities, creating a virtuous circle. Social, economic, and cultural heterogeneity have long been thought to reduce cooperative capacity because such diversity makes it difficult to find mutually beneficial arrangements. Sociocultural diversity may also improve cooperative capacity, however, by widening the possible set of cooperative arrangements and avoiding institutional inertia. Recognition and support from external agencies, such as government, enhances the authority of the group to engage in collective action. More participatory forums for setting the collective action agenda and implementing activities, transparency and accountability mechanisms, and credible and fair conflict resolution mechanisms all contribute to successes in collective action.

Other factors may affect both cooperative capacity and individual incentives. For instance, increases in group size may increase individual incentives to free ride. On the other hand, having more members can initially defray the costs per member. As membership continues to increase, cooperation becomes more costly owing to higher negotiation, monitoring, and enforcement costs. Unequal distribution of wealth and opportunities to work outside of the community also affect cooperative capacity and incentives.

IMPLICATIONS FOR POLICYMAKERS

Where externalities are relatively localized, community members may be better able to provide public goods because they are more knowledgeable about local conditions than are outsiders. As policymakers determine how best to aid communities in their quest to provide public goods, it is important that they carefully consider both individual incentives to provide particular public goods and the factors affecting communities' capacity to cooperate. For instance, improving a community's capacity to cooperate will have spillover benefits for all public goods provision and so might form part of a national strategy to improve collective action. In highly heterogeneous communities, however, a focus on conflict management and resolution mechanisms may be the most useful intervention. Elsewhere, it may be more relevant to disseminate information on organizational tools.

Where policymakers are making decisions on devolving responsibility for specific public goods to the community, they must undertake a realistic assessment of individual incentives to engage in collective action. This means assessing the underlying technological characteristics, gauging the uncertainty, or the variability, of the benefits to be realized, and determining the extent to which other public (or even private) goods and services affect the potential returns from the particular activity. The costs of making, monitoring, and enforcing agreements vary according to the underlying incentive structure and are highest in the "prisoner's dilemma." The appropriate organizational structure, procedural rules for making and enforcing agreements, and determination of fines or rewards will also differ depending on the incentive structure, and projects and policies must take this into account.

Finally, there are certain situations where institutions above the local level need to operate. Under these conditions, local groups and local and national government agencies need to coordinate and cooperate through "co-management," or nested arrangements. The burden should not fall on communities alone.

The importance of determining the relative costs and benefits of promoting community-based collective action before wide-scale policies and programs are implemented cannot be overemphasized, particularly in the context of government-led devolution and decentralization policies. Without a clear understanding of costs and benefits, project managers and government agencies may well impose upon the community the responsibility for providing a public good or service for which social costs well outweigh the benefits. Worse still, failure in collective action now will have a negative impact on the capacity of the community to engage in successful collective action in the future. ■

For further reading see A. Knox, R. Meinzen-Dick, and P. Hazell, "Property Rights, Collective Action, and Technologies for Natural Resource Management: A Conceptual Framework," CAPRi Working Paper 1 (Washington, DC: IFPRI, 1998); E. Ostrom, *Crafting Institutions for Self-Governing Irrigation Systems* (San Francisco: ICS Press, 1992); T. Sandler, *Collective Action: Theory and Applications* (Ann Arbor: University of Michigan Press, 1992); N. McCarthy, C. Dutilly-Diané, and B. Drabo, "Cooperation, Collective Action and Natural Resources Management in Burkina Faso: A Methodological Note," CAPRi Working Paper 27 (Washington DC: IFPRI, 2002).

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