

The Future Potential of Social Science and Policy Research: Implications for Agricultural, Forestry, and Fisheries R & D in Developing Countries

by

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Among the burning puzzles affecting the efforts of members of the CGIAR network and associated centers, as well as donors and foundations, relates to how to do policy analysis and give good policy advice related to enhancing agriculture and protecting natural resources. Half a century ago, the social sciences generated two, and only two, broad policy prescriptions for how to help developing countries increase their economic productivity and how to avoid the “tragedies of the commons” that were thought to exist throughout the developing world. One prescription was to take all steps so as to privatize as much of an economy as possible. The other prescription related to strengthening of the bureaucratic structure of central government so that national governments would become the owners of key natural resources, would exert centralized control, and solve public problems. In other words, our policy recommendations revolved around the market and the state.

Half a century of these policy prescriptions has not led to overwhelming successes. The results have not been as successful as the results from research conducted into the genetic foundations of plants and diverse ways of enhancing agricultural practices. Tragically, while considerable research has generated methods of greatly increasing agricultural output, the level of poverty in many countries where agriculture is still a major part of the economic base is very high.

How paradoxical! We have learned ways to increase agricultural production, but not how to increase economic prosperity. We do have, however, strong findings from a number of studies that institutions make a major difference in whether developing countries solve some of the pressing problems they face (Acemoglu et al., 2001; Dollar, 1992; Easterly and Levine, 2002; Costanza et al., 2001). What kind of institutions, though? This is a key question.

An important lesson from the social sciences is thus that institutions matter. By institutions, I mean the rules and norms used by individuals in delimiting the “mays, musts, and must nots” of any situation (Ostrom, 2003). Some of these rules are formal laws. Many rules-in-use lack formal status, but are perceived by participants as the rules governing their interactions (Ostrom, 1999). These rules exist at local levels, at regional levels, at national levels, and at the international level. Some of the rules that people use lead to highly inefficient and dysfunctional situations. Others are neutral. Some enhance the fairness, efficiency, and smooth operation of the ways individuals relate to one

another in using natural resources such as forests, inshore fisheries, and irrigation systems (Ostrom, 1990; Lam, 1998; Tang, 1992; Shivakoti and Ostrom, 2002).

The problem is that if social scientists see their role as studying just two pure types of institutions – the market and the state – they do not even “see” some of the effective institutions that have enabled local users of natural resource systems to sustain the resources they use as well as sustaining their local economies.

The social sciences need to take multiple lessons from the conduct of biological and ecological research. Biologists in general have recognized that the world they study is incredibly complex. Thus, they need multiple modes of analysis to be conducted at multiple levels and leading to a diversity of solutions that are more or less effective depending on the environment in which they are implemented. There is not just one way of building soil fertility. There is not just one way of increasing agricultural yield. Social scientists need to learn that there is not just one way to building better institutions. Privatize or centralize are not sufficient policy advice. Nor, is the recent flurry of recommendations to “decentralize” much more than another popular, but sometimes empty, prescription (see deVries, 2000). Policy prescriptions that are presented as a single panacea with a pre-defined blueprint, rather than as sets of principles that can be used in the design of many different specific institutions matched to local settings, have little chance of being successful.

What we have learned from a wide diversity of studies of common-pool resources – including irrigation systems, forests, inshore fisheries, lakes, grazing areas, etc. – is that the variety of ecological conditions in these resources varies dramatically. A recent National Research Council study of the research on common-pool resources, for example, reached three very general lessons (National Research Council, 2002). These are:

Lesson One: There is no one best system for governing the commons.

Lesson Two: Many more viable options for resource management exist than earlier envisioned.

Lesson Three: Commons management should be thought of as a problem of designing a system to meet a set of *challenges* (Stern et al., 2002).

It has also been found that when users of these resources have at least some voice in the design of institutions for governing and managing the resources, and when there is relatively accurate and rapid feedback about the impact of these institutions on the behavior of users and on the resource itself, that it is feasible that resources can be managed sustainably over time and contribute to the economic viability of users living in the region (Dolsak and Ostrom, 2003).

In the future, we are better off thinking about policy process as an adaptive process. Adaptive governance and management dissolves the barrier between research and policy advice since researchers and managers work together over time. If they proceed in a stepwise fashion, responding to changes and guided by feedback from a resource,

adaptive management allows for institutional and social learning. Through institutional and social learning, resource users develop a collective memory of experiences with resource and ecosystem management. It draws on experience but allows for novelty and innovation within the framework of accumulated experience. It provides a repertoire of general design principles that can be drawn on by resource users at multiple levels to aid in the crafting of new institutions to cope with changing situations (National Research Council, 2002; Burger et. al., 2001).

Many indigenous and traditional knowledge-based systems parallel adaptive management in their reliance on learning-by-doing and the use of feedback from the environment to provide corrections for management practice (Berkes et al., 2003). They rely on the accumulation of knowledge over many generations. This knowledge is transmitted culturally. Without systematic research, this local learning does not generate testable hypotheses and generalizable theories. With the careful design of research that carefully records both social and ecological system characteristics and their interactions over time, it will be possible to develop shared knowledge systems about the complex factors that enable some people to sustain ecological systems for long periods of time while others destroy them rapidly (Jansen, 2000).

The parallels between adaptive management and local and indigenous management systems that respond to environmental feedback are probably not accidental (Berkes et al., 2003). Flexible social networks and institutions that proceed along by learning-by-doing are better adapted for long-term survival than are rigid social systems that have set prescriptions for resource use. Such institutional arrangements have been judged as inefficient since they look messy and are nonhierarchical in structure. A growing literature on polycentric institutions (McGinnis, 1999, 2000; Pahl-Wostl, 2002) is demonstrating that dynamic efficiency is frequently thwarted by creating centralized institutions and enhanced by systems of governance that exist at multiple levels with some degree of autonomy complemented by modest overlaps in authority and capability. Instead of rejecting or accepting policy prescriptions on the basis of simplicity, the aesthetic appearance of the system, or knowledge that the prescription has worked or not worked in one setting, we need to be developing both a more complex way of thinking about institutions as well as better ways to test theory in the experimental laboratory (Ostrom et al., 1994), in agent-based models (Janssen, 2003), and in the field (Gibson et al., 2000).

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