# Collective Action and Property Rights for Sustainable Development

## Farmer Research and Extension

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Local innovation is the key to sustainable improvement in agricultural production, natural resource management, and rural livelihood systems. One of the main lessons of participatory research is that involving stakeholders in the early stages of research and development leads to better targeting of technologies, a greater sense of local ownership, and often more economically secure livelihoods. Participatory research approaches have been shown to reduce the time between the initiation of research and the adoption of new technologies and to increase both the rate and speed of adoption. The process of participating in research can also have a significant impact on farmers' human and social capital.

Combining technical innovations with collective action initiatives has been shown to lead to substantial farmer benefits. A number of farmer-led research and extension (FRE) approaches incorporate collective action for different purposes and at different stages in the innovation process. Collective action can be useful in sharing knowledge, setting priorities, and experimenting with, evaluating, and disseminating technologies.

Participatory research and collective action tend to reinforce one another. Where strong norms of collective action and social capital exist, they create a climate conducive to joint experimentation and sharing of innovation. Collective action can be instrumental in motivating participation, coordinating the actions of multiple resource users, spreading risks, managing environmental spillovers, and scaling up the benefits of participatory research. When seeded by external facilitation and scientific partnership, a carefully nurtured process of participation also has the potential to strengthen social networking, cooperation, and organization.

### COLLECTIVE ACTION RESEARCH PROGRAMS

Farmers and communities have used a range of FRE approaches based on collective action. This section describes some of the most widely applied participatory research approaches.

*Farmer field schools (FFSs)* emerged in Indonesia in 1986. By 1998 more than 1 million farmers had participated in FFSs in Indonesia alone, and the method had spread to 12 Asian countries. It also appeared in many African and Latin American countries, and the approach continues to spread globally.

The method typically brings together 20–25 farmers from a community for intensive, field-based learning by doing. It has been used mainly to train farmers in the principles of integrated pest management (IPM). Collective action in IPM is critical because reducing pest infestation depends on widespread adoption of the practices. FFS training, tools, and dynamics aim to build solidarity among participants, thereby promoting knowledge sharing, experimentation, adoption, and diffusion. In one Indonesian case, farmers broadened the scope of the project from targeting a single pest to adopting a more integrated crop management program for cassava production. Farmers employing the new method achieved a higher net income.

*Local agriculture research committees (known by their Spanish acronym, CIALs)* provide farmer-led research on crop technologies to communities. Communities interested in forming a CIAL elect a small team of community members to undertake the research. Through partnerships between farmers, extension workers, and scientists, researchers learn about the farmers' priorities and filter those up to research organizations to shape technology development. At the same time, farmers learn skills in research design and experimentation and gain access to information on new technologies from the scientists. Unlike the farmer field schools, CIALs are permanent and provide ongoing services. The two approaches are increasingly used to complement each other.

Because CIALs work to bring communities together to identify research priorities and learn from their results, their viability depends on large-scale cooperation and support. Joint experimentation is also fundamental. Collective action helps to spread both the experimentation risks and the labor burden, while also enabling more extensive and verifiable experiments. In Colombia and Honduras, CIALs have formed second-order organizations to provide credit, organize exchange visits, and train experienced members to become facilitators who can organize new CIALs.

*Farmer research groups (FRGs)* also carry out joint scientific experiments. They differ from the CIALs in size (FRGs have between 10 and 45 members) and because their members participate for themselves as individuals, rather than on behalf of the community. Often they build on existing local organizations.

A study of 21 FRGs in Kabale, Uganda, revealed that participation in these groups follows a U-shaped pattern. Participation is initially high when groups are formed, then declines as members drop out and motivation wanes. Once groups show successful results, more farmers join. The poorest farmers appear to participate in equal numbers with less-poor farmers, and women tend to dominate FRG membership, although men tend to occupy leadership roles in mixed groups.

Experiments are undertaken on a shared plot that is either rented by or donated to the group. All phases of experimentation, from land preparation to harvesting, are implemented collectively. Members develop common rules for the group's operation and membership. Including a sociologist among the external researchers collaborating with the group is instrumental in building the group's organizational capacity.

*Farmer innovation approaches (FIAs)* in Africa identify farmer innovators to promote indigenous knowledge. Their focus is mainly on soil and water conservation technologies.

Researchers and extension workers learn from and provide technical assistance to farmers on the technologies that farmers have already developed or help them to develop monitoring and evaluation processes. Researchers do not generally introduce new technology options.

Collective action takes place not during innovation, but rather during dissemination of the technology and its principles, as networks of local innovators are formed. These groups not only investigate one another's innovations, but also visit farmer innovators outside their regions and host other community members on their farms to exhibit their innovations and disseminate their knowledge.

Networking helps build innovators' self-esteem and strengthens their relationships with researchers and extension workers. Sponsoring programs actively promote individual innovators, not only locally, but also nationally and internationally, so that prestige and exposure are among the incentives for participation.

## HOW DO FRE APPROACHES COMPARE WITH CONVENTIONAL RESEARCH?

Much participatory research focuses on farm- and plot-level technologies. FRE approaches that address landscape-level resources and technologies, particularly those held in common, are still the exception. Even participatory watershed research, which starts with a landscape perspective, is mostly oriented toward on-farm soil and water conservation measures. Addressing landscape-level resource management using FRE will undoubtedly require even greater attention to collective action than is already employed in crop and farm technology research. The challenges of fostering successful collective action around natural resource management technologies currently lead programs to focus on less complex systems.

The collective action needs for participatory research can be seen as a continuum (see the figure). On one end of the continuum are resources that are managed by individuals or households at a plot level and that generate few spillovers for their neighbors. Midway on the continuum are resources that encompass significant environmental flows, such as water or soils in a watershed or hillside context; involve many more stakeholders in resource management; and generate more innovations for their management. On the other end of the continuum are common property resources, for which both the costs and the benefits of management are shared by multiple users who may prioritize the ultimate use of those resources differently. In this case, research cannot be effective unless all


users are involved and there is agreement on which technologies are to be tested and the criteria to evaluate them.

Although this framework may be helpful for identifying important collective action constraints for landscape-level farmer research and extension, collective action for organizing farmer participation and knowledge sharing is likely to add considerable value to on-farm research. Collective action may also be necessary for effective scaling up of technologies. Empirical studies show that farmer participatory research, even if conducted at the farm or plot level, leads to rapid scaling up of results to landscape levels if the research is sufficiently linked to local social networks and is designed to enhance local human and social capacity.

Further stakeholder dialogue and research are needed to identify which approaches are most effective at strengthening collective action for FRE so that it

- better addresses landscape resource issues;
- fosters greater and more widespread human and social capital; and
- accelerates, improves, and scales up the outcomes of the innovation process.

Ultimately, the goal of refining farmer-led research and extension in these ways is to improve the livelihoods of the poor. ■

**For further reading see the publications available on the Program on Participatory Research and Gender Analysis website at http://www.prgaprogram.org/**

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