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Participatory action research and support for community development and conservation: examples from shade coffee landscapes in Nicaragua and El Salvador

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## Participatory Action Research and Support for Community Development and Conservation: Examples from Shade Coffee Landscapes in Nicaragua and El Salvador

A researcher is driving out to his field site and passes a farmer whom he hopes to enlist as one of his study's information sources. The researcher says, "Hola, I bet I can tell you how many sheep you have grazing in your coffee farm."

"Oh, really?" says the farmer, raising her eyebrows. The researcher pulls out a global positioning system and calculates the exact geographic position and altitude of each parcel on the farm, then tells her, "I know that you have 17 sheep and the best one was lost just now and so I picked him up for you and he's in the back of my truck. Don't mention the favor, I know you'll pay me back soon."

The farmer looks up with a grin: "I bet I know who you are and where you are going too. You must be a researcher."

"Yes," he responds in surprise. "How did you know?"

"First, because you didn't ask permission to come here and work in our community. Second, because you used high technology to tell me information that I already know. And third, because that is my dog in the back of your truck."

This story illustrates some of the tensions that can exist when researchers and community members interact. The goal of this paper is to confront these tensions and to share our experiences with an alternative approach to the research process known as participatory action research (PAR). We have both used this approach to help guide over five years of field research and local development with small-scale farmer cooperatives that manage shade coffee landscapes in Nicaragua and El Salvador.

### LINKING RESEARCH AND LOCAL DEVELOPMENT

Just as researchers struggle to create an approach to scientific inquiry that is more relevant to and useful for the landscapes, people, and communities in which they conduct their studies, communities often seek research contributions that generate better information and increased participation in their development and conservation processes.

We found participatory action research to be a useful approach in meeting the dual goals of research and action for positive change. We believe that this approach is still evolving and that it is usually necessary to combine it with more conventional research approaches and methods. We also recognize that many other research practices, which may not fit directly with the concepts and terms used here, can be both participatory and action-oriented.

In this research brief we will describe the process of participatory action research using examples from our own work, and address the following questions: What is PAR? What

occurs during each step in the PAR cycle? Who participates in PAR and how do they participate? What methods were used, and what has occurred in two case studies that approached the PAR process from different starting points? Finally, we will use the answers to these questions and a critical discussion of PAR's challenges to propose several guiding principles for this approach.

### WHAT IS PARTICIPATORY ACTION RESEARCH?

Greenwood and Levin (1998:4) define action research this way: "Action research (AR) is social research carried out by a team encompassing a professional action researcher and members of an organization or community seeking to improve their situation. AR promotes broad participation in the research process and supports action leading to a more just or satisfying situation for the stakeholders." We would add that action research can also be ecological research and, in the case of conservation and development initiatives, an action research approach can help link both social and ecological research questions.

Kurt Lewin, a social psychologist writing in the 1940s, is considered among the first to promote an action research approach (Cooperrider and Srivastva 1987). Action research and its variations have since been adopted in a variety of disciplines, including education, psychology, community health sciences, and more recently in rural development (Selener 1997; Greenwood and Levin 1998). *Participatory* action research (PAR) is a term that started appearing more

## Participatory Action Research

widely in the 1990s, and was associated specifically with activities related to rural and agricultural development in developing countries (Selener 1997). Like community-based research, action research, and appreciative inquiry, it seeks to generate both research results and change, or actions.

### The PAR Cycle

We see PAR as a cyclical approach that attempts to involve a wider diversity of stakeholders as active participants in a process of both research activities and efforts to act for positive change. PAR's cyclical process traditionally includes looking, thinking (reflecting), and acting (Stringer 1999 cited in Green 2004). We add sharing and expanding the network as a fourth step in the PAR cycle. Figure 1 illustrates this ongoing process.

#### **Looking: Starting with people and a problem in a place**

The participatory action research cycle begins by the researcher(s) and/or facilitator forming a group to participate in the process. This group is usually embedded in a local organization or a forum that joins together a number of local stakeholder organizations and individuals.

The researcher and participants collectively identify an issue/problem or opportunities for positive social change. For example, the issue could be the effects of low coffee prices on small-scale farmer livelihoods, or it could concern the impact of pesticides on children's health in California schools. The possibilities for research topics and issues are endless. Different actors that **look** into the issue construct the problem in different ways based on their perceptions, interests, and analytical abilities.

The first question to ask is, who are the actors involved in defining the problem? Often desktop research starts from the published discourses of government, academic, and other organizations with sufficient capacity to elaborate and disseminate these discourses. Participatory action research asks researchers to diversify the voices. How do different—and often marginalized—voices view the issue? What are the questions asked by the local people and organizations that will be the counterparts during the research and change process?

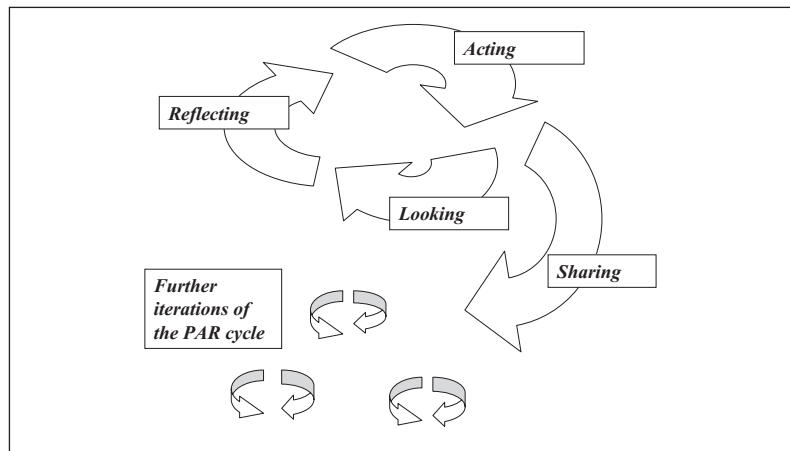


Figure 1. The continual process of the PAR cycle

#### **Reflecting: Learning during the change process**

The dynamics of a social system are often more apparent in times of change (Lewin 1948). Participatory action research follows a problem and collective desire for change. The researchers facilitate learning during the change process by presenting preliminary results back to participants and creating a forum for on-going analysis and **reflection**. After sharing the preliminary results, different actors will discuss their interpretations and, ideally, deepen their understanding and analysis of the change process in their organizations and communities. Following this analysis, participants may change their actions and/or re-orient their projects.

#### **Acting: Changing during the learning process**

Participatory action research has a dual purpose: creating positive social/environmental change, and contributing to scientific knowledge. One of the defining differences between PAR and other forms of participatory and more conventional research is the commitment to **action** by the participants.

PAR begins with a specific intention to generate information that is useful for action. After the participants have completed the looking and reflecting processes, they will often decide on actions. The people and organizations with the power to act will do so when they choose to and not necessarily in accordance with the process occurring within the PAR group. However, in many cases the participants in a PAR process will take a number of actions in accordance with

what they have learned as they evaluate the issues and changes in their organizations and communities.

#### **Sharing the experience and expanding the network**

Sharing and reflecting upon the participatory action research process with other individuals or groups can be an enriching educational exercise for all stakeholders. **Sharing** implies that the actors in a process reflect, assess, and summarize the research and change results of their experience. This can be done through a written document, but it is generally more effectively done through educational visits, including farmer-to-farmer and cooperative-to-cooperative exchanges.

Expanding the PAR network is perceived as a potentially strategic action. Links can be established with communities, organizations, researchers, and interested parties engaged in similar processes, and mutual learning and development networks can be created.

#### **Creating an Action—Reflection—Action Cycle**

The action step serves as the point of departure for a new iteration of the PAR cycle. PAR depends on continued iterations to refine the questions and findings, and to continue creating a *praxis*, in the form of an engaged dialogue between research and action.

After each PAR cycle, the questions, data quality, and results become more specific and usually result in more successful decisions and continued improvements in the area that the research is addressing.

Continuing the cycle is one of the most challenging steps of the PAR process because it requires a long-term commitment from PAR stakeholders. Many researchers will decide not to continue with the cycle based on their personal and professional choices, or availability of research funds; local communities may also decide to prioritize other activities.

**QUESTIONING THE PROMISE: POWER, PRIVILEGE, AND PARTICIPATION IN PAR CYCLES**

In initiating the PAR process, it is important to examine levels of participation, the differences in participants’ power, and the social roles played by researchers, farmers, and other stakeholders involved. We begin by asking who participates? How do they participate? Are participants that start with less power really given equal voice? How does the researcher participate? As the PAR cycle continues and the group acts and evaluates, new questions will arise. Who bears the risks and who benefits from a PAR process? Has the process supported positive social and environmental change? A vocabulary that defines levels of participation can help PAR participants address these critical questions.

Researchers and their counterparts form many different relationships with different degrees of participation in the research and change processes. Biggs (1989) created a typology that describes the degree of participation associated with different scientist-farmer relationships (figure 2). If we apply this continuum to a PAR cycle of looking, reflecting, acting, and sharing we can begin to compare

and assess the degrees of participation in different PAR initiatives. These degrees of participation can change as relationships evolve.

Selecting the appropriate unit of study will influence the degree of participation that is possible in a research project. Studies with a very small or specialized unit of study will generally have less community and organizational participation than those that are working at the community and landscape scales of analysis. However, both types of studies can involve significant participation.

**Who Participates and How?**

Participation in a PAR cycle with the intention of “thinking with the local community” to advance research and create opportunities for empowerment and positive environmental change is a long and negotiated process (Cooke and Kothari 2001). Communities are full of uneven power relationships, conflicts, rivalries, and of course cooperation and collective struggle as people make a living and make that living meaningful. Furthermore, communities are not necessarily local. In fact, the people we conduct research with earn their living on coffee farms and thus participate in a network of trade relations that stretch from the farm to coffee roasters and drinkers around the world. Others have relatives in Costa Rica or the U.S. who send them money, and thus have formed transnational networks to support their livelihoods (Bebbington and Batterbury 2001).

The community members who can mobilize more powerful social networks for moving economic, social, and natural

resources will wield more power than others. Often a PAR project will include as one of its goals providing opportunities for the poor and marginalized people to express their voice and create changes in their own lives. However, this will not happen if a PAR forum fails to acknowledge existing ideas about identity and current power inequalities.

If researchers want to increase participation and move toward more collaborative and collegial relationships in the PAR cycle, they can start by making their personal history, identity, and interest in the work clear to the participants. The next step is to develop these understandings regarding their counterparts involved in the PAR process. These mutual understandings form the foundation for the trust and tolerance that are essential for meaningful participation.

The following steps (adapted from an undergraduate field studies course at UC Santa Cruz) can help guide researchers and community members in a process of understanding their respective social locations (Guthman and Cohen 2004) –

1. Describe your background and self-identification (places you have lived, race, class, gender, sexuality, experience, nationality, and so forth).
2. Describe the background and characteristics of the organization and/or community in which you work.
3. Discuss how your class, gender, and socially ascribed “race” are similar to or different from those of the people you work with and reflect on the privileges you bring or do not bring to the work.
4. Consider how the interactions between these differences and the powers that cultures assign to different races, classes, and genders affect participation in research and change processes.

These steps recognize the importance of understanding how the different people involved in a PAR process are simultaneously living and creating their identities (Hall 2000). If the researcher makes this clear in their own career and is cognizant of the histories, identities, and political projects of participating community members, he or she will have traveled a long way toward creating mutually beneficial collaborative and/or collegial relationships.

In spite of these complexities, both scholars and practitioners have often found the PAR approach useful. Schol-

Types of participatory research	Objective
Collegial	Researchers work with local actors to develop and strengthen their autonomous research and development capacities and practice
Collaborative	Researchers and local actors collaborate as partners in the research process
Consultative	Researchers consult local actors about their problems and develop research to help solve them
Contractual	Researchers contract local actors to provide land or services

Figure 2. Types of participatory research and their level of participation (modified from Biggs 1989).



**Participatory Action Research**

ars hope to generate more information from a wider variety of sources, and practitioners hope to add more voices and deeper reflection to the planning, implementation, and evaluation cycles (Green 2004). Participatory action research also promises to help bridge the dichotomy between scholars and practitioners and to link research and action. However, this bridge does not facilitate a seamless passage between two straight roads; instead it must begin to carry a minimum set of understandings among multiple cultures, identities, and power relationships.

**FROM RESEARCH TO ACTION: PAR ON BIODIVERSITY CONSERVATION AND LIVELIHOODS WITH COFFEE COOPERATIVES OF TACUBA, EL SALVADOR (ERNESTO MENDEZ)**

Our first case to illustrate PAR began as my doctoral dissertation analyzing livelihoods and native tree biodiversity conservation in shade coffee cooperatives of the municipality of Tacuba, El Salvador (figure 3). The aim of the research was to analyze the interactions among farmer livelihoods, biodiversity conservation, and types of farmer organizations. My hypothesis was that by better understanding these relationships, I would be able to develop strategies with the farmers that would serve both to improve livelihoods and conserve biodiversity.

The research addressed both environmental and social problems. The first involved the highly deforested condition of El Salvador, and the key role played by shade coffee in providing ecosystem services such as improved biodiversity and reduced erosion. Thus, I wanted to

Table 1. Research and Action Research Objectives for the investigation of biodiversity and livelihoods in Tacuba, El Salvador (Mendez 2004).

Research Objectives	Action Research Objectives
1. Characterize the different types of shade on the coffee farms in the study area as a deliberate management strategy.	1. The action-research process will provide information that could be used by small-scale farmer cooperatives to better conserve their natural resources and improve the agroecological management of their plantations.
2. Assess the role and importance of shade tree products and other benefits to the livelihood strategies of farm households.	2. The action-research process will support small-scale farmer cooperative households in their efforts to improve their livelihood strategies and to develop and expand their social and marketing networks.
3. Determine the effects of different types of farmer cooperatives on shade management.	3. Action-researchers and their collaborators will provide direct advisory, infrastructure, training, and logistical support to farmers in their development, conservation, and productive activities.
4. Evaluate the environmental conservation potential of small coffee farms, with an emphasis on conservation of native tree species.	

provide relevant information to conserve shade coffee for environmental concerns. The social problem involved the livelihood crisis that small-scale farmers and cooperatives were facing due to the sharp decline in coffee prices (figure 4, page 8).

Although I wanted to help improve the livelihoods of the coffee farmers I was going to work with, it was initially unclear how my research was going to accomplish this goal. In other words, the “action” part of the study was not well defined at the outset, even though the thesis did have a set of “research objectives” and “action research objectives” (table 1). Despite this initial uncertainty,

my research methodology used a diversity of participatory approaches in the hopes that these would facilitate meeting the action research objectives.

**Methodologies and Approaches That Support PAR**

**Getting started with transparency**

A first step in the PAR process was to explain to the farmers how I was going to benefit from this research (i.e., getting a Ph.D. and furthering my career goals). The cooperative members responded positively to this discussion, mentioning that it was perhaps the first time an external actor began by expressing his/her benefit from their work.

The second step involved defining how my work was to benefit farmers and their cooperatives. This process took several meetings and interesting discussions, until we reached an agreement that I was to provide useful contacts, information, and a printed appraisal of each cooperative that could be used to seek development projects and funds. It took me approximately 6 months to get to know the members of the coffee cooperatives through meetings and personal interviews, just so the farmers could understand what my research entailed and how they could benefit from it. The ac-



Figure 3. Location of study areas in El Salvador and Nicaragua.

tual research process did not begin until I had developed relationships with those individuals and organizations that would eventually be involved in the work.

### **Interdisciplinary approach**

The need to address environmental and development issues from a perspective that analyzes both social and ecological dimensions has been argued strongly over the last decade (Scoones 1999). An interdisciplinary perspective is desirable for PAR because it allows researchers and local actors an opportunity to get a more precise grasp of a local reality. Focusing only on the ecology or sociology of a landscape is bound to leave out important factors and relationships that might be critical for development and environmental concerns.

With this in mind, I collected in-depth social and ecological data on the shade coffee plantations, and on the farmers and organizations that manage them. As a result, the project yielded considerable information at the household livelihood level, a thorough analysis of cooperatives as organizations, and a significant amount of biophysical data related to tree biodiversity. Logistically, this approach made my fieldwork period much longer (3 years full time), and thus more expensive, but allowed for a fully integrated analysis of social and ecological variables.

### **Multiple scale research**

Many times the situations faced in a community result from the interactions of several forces acting at different spatial, geographic, and political scales (Bebbington and Batterbury 2001). Making multi-scale analysis part of the research helps to better visualize the actors and dynamics that affect a particular community, and can enhance the search for solutions to problems. During my research, I analyzed households, organizations, and landscapes at the local level, and conservation and development networks at the national and international levels.

### **Focus groups and semi-structured interviews**

Focus groups and semi-structured interviews were key methodologies for the PAR approach to the project. Through them I collected data on both



Ernesto Mendez (front row, right) with members Don Dagoberto Saldana and Julio Rumaldo from La Concordia Cooperative; Don Luis Ramirez and his family from Las Colinas Cooperative; John Dinning, Peace Corps volunteer; and Sarah Levitan, an intern from the Community Agroecology Network (CAN).

social and ecological variables, and they were especially useful for cross checking information. Focus groups usually refer to an organized discussion that is facilitated by a researcher, which focuses on a selected topic or topics (Butler *et al.* 1995; Gibbs 2003). Focus groups are conducive to widespread participation and discussion because the researcher acts as moderator and can encourage contributions from all the participants in the meeting. It also allows the researcher to obtain “several different perspectives about the same topic” (Gibbs 2003:1). I find focus groups useful for PAR because they are conducive to group reflection and discussion.

Semi-structured interviews are a flexible method of compiling information from dialogue between two people or amongst a group of people. This method has been widely used in participatory rural appraisals (PRA)<sup>1</sup> and similar approaches, and has the advantage of allowing people to exchange information with much less restriction than in a closed-ended survey. If used correctly it opens a space for the voices of the local actors to be heard and documented.

### **Data triangulation**

Triangulation implies collecting the same information from different sources and using this to cross check its veracity. For example, the same topic might be discussed in a focus group as in a household interview. If the outcomes of the discussion are very different, additional research to explain the disparities may be needed.

Since I was analyzing how organizations functioned and benefited their members, it was particularly important to contrast information found at the household level with that provided by the board of directors of the cooperatives. To do this, focus group discussions were based on the same questions that were asked in the household surveys.

### **Conventional research methods**

Because the research project involved both ecological and social questions, I used many conventional methods to collect data in an effort to generate scientifically rigorous information (e.g., see table 2). However, throughout the process I made a concerted effort to involve farmers in all aspects of the research.

### **The need for flexibility: Integrating research questions with local problems**

As my research on shade and native trees got underway at the beginning of 2000, the coffee price crisis (figure 4) hit the cooperatives of Tacuba full force. This prompted the farmers to solicit my help as they sought options, including alternative coffee markets (Méndez 2003b) and payment for ecosystem services (Méndez 2003a), that would buffer the economic impacts created by the severe drop in coffee prices. Although these issues were not part of my initial objectives, I integrated them into the project as part of a process that evolved to include much more than “pure” conventional research. Being flexible in shaping my research was an integral part of the PAR process.

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Table 2. Results of the tree biodiversity inventory in the 3 cooperatives of Tacuba, El Salvador (starting with the 2nd row, figures in parentheses are standard deviations) (Mendez 2004).

	<b>Coop 1. Agrarian Reform</b>	<b>Coop. 2 Traditional</b>	<b>Coop. 3 Farmer Association</b>
<b>No. of plots</b> (total sampling areas for each cooperative in parentheses)	20 (2 ha)	14 (1.4 ha)	17 (1.7 ha)
<b>Total species richness per site</b>	69 ( $\pm$ 16.79)	48 ( $\pm$ 11.16)	93 ( $\pm$ 23.99)
<b>Mean richness per plot</b>	12 ( $\pm$ 4.10)	12 ( $\pm$ 2.89)	22 ( $\pm$ 8.33)
<b>Mean stem density</b> (trees per plot; N=2743)	39 (+14.92)	35 ( $\pm$ 16.15)	89 (+52.27)
<b>Mean diameter at breast height</b> (DBH, in cm)	14.7 ( $\pm$ 13)	12.5 ( $\pm$ 12.51)	8.4 ( $\pm$ 8.81)
<b>Mean height</b> (m)	5.5 ( $\pm$ 2.4)	5.2 ( $\pm$ 2.53)	5.3 ( $\pm$ 3.05)
<b>Shannon-Weiner index</b>	3.03	3.21	3.59

### Research and Action Results

The action part of the PAR process in Tacuba was initiated when the researchers (by this time there were others involved) began training on organic coffee farming, alternative markets, and livelihood diversification in 2002. These themes had nothing to do with my original research, but were actions directed at improving farmer capacities for decision-making.

The other important turn to action in El Salvador was to invest in activities to support farmer livelihoods. These activities have ranged from the researchers contributing bananas and plantains for diversification, making direct market links with the Community Agroecology Network (CAN; see sidebar), to providing infrastructure.

### Learning and local development networks

Cooperative leaders were interested in support for their organizational development and links to new marketing networks. As a result of PAR's sharing process, the networks developed included a farmer-to-farmer exchange coordinated with CECOCAFEN in Matagalpa, Nicaragua (see the Nicaragua case); relationships with the Central American Campesino and Indigenous Association for Community Agroforestry (ACICAFOC); and connections to the University of El Salvador, the Central American University, and to numerous individuals and organizations.

In addition, a key link has been established with CAN, through which farmers can participate in farmer exchanges, alternative marketing, and internship programs. These links have not only yielded valuable products (for example, being included in a project by the Spanish International Cooperation Agency), but have strengthened the cooperatives' capacity to seek out and join different types of networks.

Some of the major outcomes of the El Salvador PAR case include the following—

- This case has successfully facilitated interdisciplinary research, including 2 doctoral dissertations, 2 completed master's theses, and 2 ongoing master's

### Community Agroecology Network

The Community Agroecology Network (CAN) is a non-profit organization with a mission to develop a network of rural communities and consumers that work together to support self-sufficiency and sustainable farming practices.

Initiated in 2001 by Stephen Gliessman and Roberta Jaffe, CAN supports research, education, and marketing efforts to provide rural communities with the tools to become economically viable through agriculture while also benefiting the environment. Among its activities, CAN arranges internships for students in participating communities and creates direct links between coffee growers and U.S. consumers. See [www.communityagroecology.net](http://www.communityagroecology.net) for more information.

theses from the University of California, Santa Cruz; University of Texas, Austin; Yale University; and the University of El Salvador.

- Both researchers and farmers have committed to a long-term PAR process. For this purpose I started a local foundation, Advising and Interdisciplinary Research for Local Development and Conservation (ASINDEC).

- Farmers received up to 15 trainings in topics ranging from tree biodiversity to alternative marketing.

- Farmers continue to use the office infrastructure, including phone, space for meetings, and computers.

- Researchers continue to advise and support growers, as explained above.

Coffee growers from Tacuba deliver their first shipment of green coffee to the Community Agroecology Network (CAN), to be sold to UC Santa Cruz and directly to consumers in the U.S. Sarah Levitan (at left in photo), supported growers in this activity as part of her CAN internship with ASINDEC in Tacuba.





## Reflections on the PAR Process from El Salvador

The El Salvador case illustrates that PAR can develop from different starting points. In my case the conventional research preceded the action objectives, but included approaches that facilitated the transition to a PAR process. This experience also demonstrates that it is possible to conduct scientifically rigorous research in combination with action objectives, but that this will probably require more time and resources.

Reflecting on our background, experiences, and motivations to conduct participatory research is an important, albeit seldom acknowledged part of the process. As I continue to work at the interface between research and development in El Salvador, my motivations are continuously questioned as a result of my social background. As a member of an upper middle class family in El Salvador, I had access to privileges and resources impossible to acquire by the vast majority of Salvadorans. This has prompted suspicion from both fellow professionals and farmers alike. It has made me aware of the need for transparency and communications that include both respect and confidence. In order to do this I have followed two basic principles: 1) be a good and patient listener; and 2) don't make promises you can't keep.

Beyond the obvious courtesies of these two guidelines lies an awareness of the contestations of a highly unequal social and economic system. Farmers are accustomed to researchers, donors, and government officials saying they want to hear their opinion, but never taking the time to listen. They are also repeatedly offered projects, support, and copies of theses that never materialize. Only through time and effort can relationships be tested and trust developed.

One of my most important points of entrance into the PAR process was to acknowledge the motivations behind my research. I selected the site and the cooperatives based on my research interests, and was straightforward about my reasons. This was not seen as negative, but in fact made a lot of sense to farmers. In addition, farmers embraced the chance to engage in a more equal relationship where the mutual benefits were clear. This gave them additional

leverage in voicing their opinions and questioning my actions, knowing that both parties had a vested interest in the relationship.

Employing local assistants also helped our research gain acceptance. These jobs not only provided assistants with an income, they created a way for them to access knowledge and contacts that can benefit the community.

As research has increasingly given way to more action and direct support to farmers, ASINDEC has embraced the following process-oriented principles\* (Gómez and Méndez 2004). We present these as guidelines for donors and organizations to follow in proposing a project, and suggest that any proposal should—

- Commit to strengthening the political empowerment of its local partners.
- Focus on the institutional development of community organizations and human capital, through the development of local capacities (in the words of Ruben Pasos, it should only do what local actors cannot do).
- Be committed to the learning process of local actors, allowing them to take leading roles, even when they make mistakes. Learning from mistakes is a key part of the process.
- Avoid paternalism and the creation of external dependency.
- Be long term, dynamic, and use a complexity of networks and contacts.
- Prioritize long-term processes, not short-term projects.
- Invest in relationships of mutual trust with local actors.

These principles present the reflections of key individuals and organizations seeking to improve models of accompaniment and support to poor rural communities. It is also important to include self-critical reflection as part of this process-oriented approach, in order to ensure its evolution with local needs and development.

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*\*These principles draw from my work with the Salvadoran Research Program on Development and Environment (PRISMA) and specifically from discussions with Ruben Pasos.*

## FROM ACTION TO RESEARCH: SMALL-SCALE COFFEE FARMERS USE COOPERATIVE, FAIR TRADE, AND ORGANIC NETWORKS TO NEGOTIATE CRISIS AND SUSTAINABILITY (CHRIS BACON)

As green coffee prices fell to their lowest levels in 100 years (figure 4) and small-scale farmers in northern Nicaragua struggled to maintain their livelihoods and landscapes, I began to formulate a research project around this issue, based on my experience conducting evaluation work for the coffee quality improvement project.

The coffee quality improvement project consisted of building coffee “cupping” labs (where coffee quality is evaluated) with coffee-growing cooperatives and linking the export cooperatives to the specialty coffee industry in the U.S. This was a time when the coffee production world in Nicaragua was in the process of rapid reorganization. As the crisis and the project simultaneously progressed, the cooperatives linking specialty, organic, and Fair Trade networks emerged as powerful actors and leaders in the promotion of Nicaraguan coffee. I continued to accompany this process and coordinate research related to the social and ecological impacts of these processes.

As part of my work on this project, I conducted a participatory baseline survey measuring basic human development and agroecological indicators. We surveyed 228 farmer members of cooperatives that built coffee cupping labs. The results from this work were the first iteration of a PAR project; after writing up these results (Bacon 2001), I returned to conduct more detailed dissertation research with 4 cooperatives and 100 farmers in Matagalpa, Nicaragua.

I formulated my research questions after two years of work in the Nicaraguan coffee world and three years of study in the Department of Environmental Studies at UC Santa Cruz. My commitment to creating a process and information that served positive social change in coffee-growing communities predated the development of my specific research questions and PAR goals. However, after beginning dissertation research in 2002, I elaborated PAR goals to accompany my research questions (table 3).



**Methodologies and Approaches That Support PAR**

I drew on many of the same approaches and methods described in the Salvadoran shade coffee case study. In fact, Ernesto Mendez came to Nicaragua before we started the tree biodiversity inventories and trained our research team in the basic methods he had used. Instead of repeating these same methods, I will highlight one approach and two methods that I found especially useful.

**An actor-oriented approach**

Just as the researcher seeks to enroll community members in their study, community members, cooperative leaders, and non-governmental organizations (NGOs) also work to enroll researchers in their livelihood projects and organizational agendas (Long and Long 1992).

In the negotiations with the cooperatives and farmers that preceded the second phase of my research, I started by saying that I would gain access to good information that would lead to a dissertation and that I would probably have increased credibility, access, and income-earning potential when I finish. I also told them I would always maintain the right to publish whatever results I found, be they positive or negative.



Figure 4. Trends in international coffee prices (ICO 2005).

The next question was, what did they want in return? While a common commitment to participatory sustainable development and empowerment united the key actors in this work, the agendas for individual projects had divergent starting points. As a researcher, I prioritized a systematic method that met academic requirements. The small-scale farmer cooperatives asked for more information and training about high quality coffee, accessing the alternative coffee markets, and understanding why they get paid the prices they do. As conventional coffee prices continued to fall the primary question that emerged from the farmers was “How do I sell more coffee at better prices?”

**Comparing organizations, farmers, and agroecosystems**

The central component of the research design involves a comparative case study analyzing the relationships and outcomes of alternative and conventional commodity networks in the context of the coffee crisis. The units of study are agroecosystems and households participating in cooperatives linked to different coffee trade networks.

I examined one cooperative producing organic coffee and selling into Fair Trade networks, an all women’s cooperative producing conventional coffee and selling a percentage of their coffee as Fair Trade, a primarily men’s cooperative selling conventional Fair Trade coffee, an agrarian reform cooperative (primarily men) selling only to conventional markets, and a group of unorganized small-scale producers (primarily men) who sell conventional coffee through a commercial exporter. The independent variables are participation in cooperatives linked to conventional and/or alternative markets; additional explanatory variables include the farm households’ engagement with their agroecosystem and coffee quality. The dependent variables refer to livelihood project outcomes.

After negotiating with all the local cooperatives’ respective boards of directors, I established agreements and developed the comparative research population described above. The research involved a combination of methods similar to those described in the Salvadoran case study, but also included personal interviews with the men and women in 22 households from the 5 groups in the study, along with tree biodiversity inventories, surveys, and participant observation during training workshops and the cooperatives’ general assembly meetings.

Table 3. Research questions and PAR goals for a study of the coffee crisis and sustainability in Matagalpa, Nicaragua.

Research Questions	Development and PAR Goals
1. What are the principal social and ecological relationships that shape and are mobilized by small-scale farmers in their livelihood projects?	1. The PAR process will use local researchers, farmers, and community youth to help gather data and build skills in research, facilitation, and information management.
2. Are farmer livelihood projects that are linked to alternative trade networks less vulnerable to the coffee crisis than those linked only to conventional coffee networks?	2. The PAR process will use the answers from question 1 to help create programs in the local cooperatives that use their participation in organic and Fair Trade coffee networks as a tool to promote cooperative-led farmer empowerment and livelihood improvements.
3. How do relationships within and among roasting companies, retailers, consumers, importers, cooperatives, and farmers differ in the conventional and Fair Trade coffee networks?	3. The PAR process will help form more direct relationships among farmers, cooperatives, coffee drinkers, students, activists, roasters, and retailers. These relationships will promote cross-cultural understanding and development.
4. How can “we” mitigate the consequences of the coffee crisis without reproducing the same structures that created it?	4. The PAR process will help deepen and thicken the U.S.-based student Fair Trade movement by providing an infrastructure for international exchange and creating a platform for producers’ voices.

## Research and Action Results

The results from the first iteration of the research demonstrated that Fair Trade and organic markets resulted in significantly higher prices paid as reported by the farmers (Bacon 2005). The research results indicate that participation in alternative trade networks results in higher farmgate prices (table 4), more technical assistance, and better access to a diversity of international development projects. The cooperatives linked to Fair Trade networks, especially the all women's cooperative, also maintain more children in school than those outside of these alternative trade networks.

I also found that selling into specialty and organic trade networks requires more work and organization, the coffee is subjected to higher quality requirements, farmers often wait months to receive full payments for their coffee, and they must invest in more intensive training to learn and apply organic agricultural practices.

### Education and agro-ecotourism networks

As one action result of the PAR process, the union of cooperatives that was involved in the research launched a community-based agro-ecotourism project to share farmer experiences, educate Fair Trade coffee drinkers, and provide

an infrastructure for student interns. The cooperatives elected one woman, man, and youth representative from each community to serve as decision-makers on the cooperatives' agroecotourism commission. Although this project brings its own host of risks, it provides an additional source of income to the families and a space for educating journalists, activists, religious leaders, and scholars that want to learn directly from the "source".

This initiative has also hired one of the Nicaraguans that served as research assistant for the dissertation research. Another research assistant has been hired by various cooperatives throughout Nicaragua to design databases like the one he designed to organize our survey results. Two years ago neither one of these two had a profession or full-time job.

In addition, CAN (page 6) continues to provide an international network, sending interns, researchers, community members linked to CAN, and even a professor from Evergreen State teaching a course about food systems and food security in Nicaragua and Costa Rica.

### Sharing the story: Training from farmer to farmer and crop to cup

The sharing step of the PAR process grew out of the farmer trainings that took place throughout the research



A professional coffee taster for the Soppexcca Cooperative in Jinotega, Nicaragua explains the finer points of coffee tasting to Rwandan farmers and a coffee roaster from the USA.

project. In response to requests from the cooperatives and the farmers, we have led trainings about quality coffee and Fair Trade networks. These trainings were conducted prior to baseline interviews and surveys so as not to provoke specific responses to our own questions.

Table 4. Farm gate prices, payments and yields for the 2001/2002 harvest.

Commercialization and Production Indicators	Coop Organica*	Daniel Teller*	El Privilegio	Adrian Zavala	Individual Farmers	National Averages**
Type of coffee production	Certified Organic	Conventional (Con.)	Con.	Con.	Con.	Con.
Commercialization network***	100% Fair Trade (FT)	25–35% FT	15–25% FT	Commercial market	Local market	All markets
Farm gate price US \$/lb of green coffee	1.14	0.51	0.46	0.40	0.43	0.37
Total days until final payment for all of coffee	180 days	47 days	52 days	1 day	15 days	—
Average yield in 100 lb sacks of green coffee/ha	3.15	8.05	6.27	6.23	3.76	2.51

Sources: Household surveys conducted between November 2002 and April 2003.

\*To compare commercialization networks, only data from members of La Cooperativa Organica (selling certified coffee) are presented. I also removed the one organic farmer from the results presented in the Daniel Teller Cooperative.

\*\*The National Averages are from CEPAL 2002. Estimated national average farm gate price, based on a National export price of 0.47 cents per pound, and making a low estimate of 0.10/lb for processing and fees.

\*\*\*Exact Fair Trade percentages were not provided by the cooperatives' administrative staff; this information provides reasonable estimates.

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But we also recorded detailed notes during the trainings and incorporated farmer reflections into the research narrative. We found that farmer-to-farmer exchanges—including a visit to another Nicaraguan cooperative that had established an ecotourism project—and hosting visits from the cooperatives in El Salvador were useful forums for reflection and innovation.

We then worked to share these experiences with international development project directors and coffee buyers, including an international exchange that brought leaders in the Rwandan coffee industry to northern Nicaragua (Bacon 2004). We continued education within the commodity chain by hosting Community Agroecology Network (CAN) interns, and an international student Fair Trade activist leadership trip.

### Continuing the Research, Reflection, and Action Cycles

This experience in northern Nicaragua reflects two iterations of the PAR cycle. We entered on the action step just as the cooperatives joined together on the coffee quality improvement project and searched for responses to the coffee crisis (Bacon 2001). After documenting this process and developing a baseline survey I returned to work with one cooperative on a more specific set of research questions. The results were returned to coffee farmers and some of them, especially the ones already linked to alternative markets, have been able to use this information and the networks established through this experience in their livelihood projects. As I write up my doctoral thesis, this research is entering a third iteration. The cooperatives have asked one of the original research assistants to design a database to manage a survey that they will use for all 2,000 of the affiliated farmers. They are also beginning to maintain more information about social indicators of development.

I hope that the empirical and theoretical results from this experience will generate a debate and dialogue within the Fair Trade movement. The study demonstrates that alternative models can help reduce livelihood vulnerability to the crisis in conventional coffee markets. Yet it recognizes that as the coffee crisis deepens and alternative models enter

the mainstream, growers will encounter increasingly large obstacles and contradictions as they attempt to improve their livelihood situations. Addressing these issues requires a more diverse, committed, and critical dialogue that engages historical ideals and existing trading practices. This dialogue could stimulate Fair Trade praxis and the continued evolution of a process intended to increase social justice in our food systems (Bacon 2005).

### Reflections on the PAR Process from Nicaragua

After two years in Peace Corps Nicaragua, I returned to graduate school in the Department of Environmental Studies at UC Santa Cruz and then *re-entered* Nicaragua and the cooperatives through networks of social and business entrepreneurs and ties to a successful coffee roasting company. This point of entry and contact with coffee buyers in northern California, especially roasters and importers that demonstrated a genuine commitment to small-scale farmer cooperatives and were occasionally willing to pay double the commercial coffee prices, facilitated my access to the key elected and administrative leaders in the cooperative movement. They then provided the necessary introductions and access to the local cooperatives and farmers that would serve more directly as counterparts for the PAR research cycles.

I began the PAR cycle by identifying the cooperatives that I felt were interested in and representative of farm families involved in commercial, Fair Trade, and Organic coffee networks. My previous relationships built with Nicaragua's principal Fair Trade cooperatives in the coffee cupping lab project led to the involvement of CECOFAN, an export cooperative, in the dissertation work.

The professional staff working for CECOFAN served as advisors on the PAR project and recommended two young men that I employed as research assistants. These research assistants, who were also children of the coffee farmers in the region, conducted interviews and biodiversity surveys.

Among the most important differences that I identified within the counterpart groups are differences in class and gender. In fact, class is not even a sufficient

category for understanding how peasant families that earn from \$400–\$800 US dollars per year and grow more than half of the food they eat relate to the professional staff that make \$400–\$800 US dollars per month working for the export cooperative. These differences manifest themselves in terms of income, education, mobility, and the power to create changes in their own lives. In addition, although women are beginning to play increasingly important roles as members and leaders within the Nicaraguan cooperative movement, men and a masculine culture dominate most meetings.

In early meetings with members of the cooperatives, I talked about my family's commitment to Nicaragua and established that I would work in these communities for the coming years. I ate the beans and tortillas the farmers offered and spoke their language. It took months, but slowly we built *confianza* or trust.

We indirectly acknowledged the inequalities in income and my lack of local knowledge, as well as the debt that accompanied the privilege of working with and writing about people with less economic resources. We also talked about the history of relationships between the United States and the Nicaraguans, and the importance of solidarity and building people-to-people relationships.

Throughout the research, I tried to avoid reinforcing a hierarchy that privileges formal scientific knowledge above local know-how and understanding. To do this we used the farmers' own words and their own organizations to celebrate their work and not validate it from my perspective or with my academic credentials.

As an example, we conducted 44 interviews with the men and women of 22 households from the five different forms of cooperative associations. Instead of handing people a certificate at the end of the project, we gave them a copy of their own words and a picture we had taken during their interview. The workshop with the PAR participants where we handed out the interview results served as a way to collectively analyze community development and empowerment. For a few women in these rural communities this was one of the only meetings they attended that year.



## TOWARD PAR PRINCIPLES

In the spirit of participation, we would like to propose five possible principles for participatory action research. We see this list as incomplete, and invite scholars and practitioners to comment, critique, modify, and propose additional principles.

The first principle is that PAR activities can support different ends depending on the values of the organizations and academics involved in the process. In this paper, the action concerns environmental conservation and community development with small-scale coffee farmer cooperatives in Central America. However, it is important to recognize that many action research projects serve more conventional purposes (Fox 2004). As a corollary we state that the values participants intend to support will not necessarily appear in the outcomes.

The second principle suggests that if people involved in a PAR process want to create an opportunity for more participation they will need to engage the many manifestations of difference (race, class, gender, etc.), recognize the way that cultures arrange these differences into hierarchies, and work to create forums that provide more opportunities for marginalized voices. When PAR processes include more diverse voices they can strengthen local grassroots decision-making processes from the bottom-up.

The third principle is that there are tensions between social change and scholarly agendas (Fox 2004). Researchers are generally paid by universities and rewarded according to their ability to publish examples of how specific cases advance and/or contradict more general theories. In contrast, most community participants earn their livelihood through their direct participation in the activities and/or problems that guide the research process. These participants are interested in using more general principles to create specific strategies for change. Both researchers and their counterparts will do better if they identify and acknowledge these differences at the outset of the project.

The fourth principle is that the PAR process is context dependent, often requires more time, and is more complicated than most conventional research. PAR is thus neither appropri-

ate nor feasible for all organizations or researchers. Researchers will also face very different challenges depending on the context. It may be relatively easy to work with small-scale farmer cooperatives in Central America as compared to, for example, strawberry growers in northern California. Joji Muramoto and Stephen Gliessman have been working with strawberry growers on California's central coast for the past ten years. After reviewing an earlier draft of this paper, Muramoto noted three factors that make the PAR process more difficult for their research on developing alternatives to methyl bromide use. First, there is a mindset of individualism and competition among the growers; second, most of the growers—including those that are certified organic—are oriented toward their monetary bottom line; and third, most are actually earning high net profits (Muramoto, pers. comm.).

The fifth principle reminds all participants to think beyond themselves and their organizations towards playing a part in larger cycles. Even in retrospect, it is difficult to map the multiple causal relationships that provoke specific changes in processes leading to empowerment, community development, and environmental conservation. Thus, it is key to remember that we are all participants in research and change processes much larger than a single person or institution.

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## Bibliography

Bacon, C. 2001. Cupping what you grow: the story of Nicaragua's coffee quality improvement project. Unpublished evaluation. Santa Cruz, California.

Bacon, C. 2004. Nicaraguan, Rwandan and North American smallholders share coffee culture and quality. Unpublished trip report. Available at

[http://www.thanksgivingcoffee.com/projects/exchange\\_rwanda\\_nicaragua/Chris-reflections.pdf](http://www.thanksgivingcoffee.com/projects/exchange_rwanda_nicaragua/Chris-reflections.pdf)

- Bacon, C. 2005. Confronting the coffee crisis: can Fair Trade, organic and specialty coffees reduce small-scale farmer vulnerability in northern Nicaragua? *World Development* 33(3).
- Bacon, C. (forthcoming). Small-scale coffee farmers use Fair Trade, agroecological and cooperative networks to negotiate globalization and crisis. Ph.D. dissertation, University of California, Santa Cruz, CA.
- Bebbington, A. J., and S. P. J. Batterbury. 2001. Transnational livelihoods and landscapes: political ecologies of globalization. *Ecumene* 8(4):369-380.
- Biggs, S. D. 1989. Resource-poor farmer participation in research: a synthesis of experiences from nine national agricultural research systems. OFCOR-Comparative Study Paper. 3. The Hague: ISNAR
- Butler, L. M., C. Dephelms, and R. E. Howell. 1995. Focus groups: a tool for understanding community perceptions and experiences. Western Regional Extension Publication No. WREP0128. Seattle, WA, USA.
- Chambers, R. 1994a. The origins and practice of participatory rural appraisal. *World Development* 22 (7): 953-969.
- Chambers, R. 1994b. Participatory rural appraisal (PRA): analysis of experience (Part 2). *World Development* 22 (9): 1253-1268.
- Chambers, R. 1994c. Participatory rural appraisal (PRA): challenges, potentials and paradigm. *World Development* 22 (10): 1437-1454.
- Cooke, B., and U. Kothari (eds.). 2001. *Participation: the new tyranny?* London: Zed Books.
- Cooperrider, D., and S. Srivastva. 1987. Appreciative inquiry in organizational life. In *Research in organizational change and development, vol. 1*, pp. 129-169.
- Davis, A. Y., and E. Martinez. 1998. Coalition building among people of color: a discussion with Angela Y. Davis and Elizabeth Martinez. In *The Angela Y. Davis reader*, edited by J. James. Malden, MA: Blackwell Publishers, Inc.
- Dick, B. 2002. Action research bibliography. Available online at <http://www.scu.edu.au/schools/gcm/ar/arp/biblio.html>
- Dick, B. 1993. You want to do an action research thesis? Available online at <http://www.scu.edu.au/schools/gcm/ar/art/arthesis.html>
- Fox, J.A. 2004. Lessons from action research partnerships. LASA/OXFAM

## Participatory Action Research

- Martin Diskin Memorial Lecture. Latin American Studies Association. Las Vegas, Nevada.
- Gibbs, A. 2003. Focus groups. Social Research Update 19. <http://www.soc.surrey.ac.uk/sru/SRU19.html> (accessed August 17, 2003).
- Gómez, I., and V. E. Méndez. 2004. Análisis de contexto: el caso de la Asociación de Comunidades Forestales de Petén (ACOFOP). Proyecto Innovativo FORD-CIFOR/PRISMA: San Salvador, El Salvador.
- Greenwood, D. J., and M. Levin. 1998. *Introduction to action research: social research for social change*. Thousand Oaks, CA: Sage Publications.
- Green, J. 2004. Conducting community-based research to diversify voices: teaching, scholarship and service through community engagement. Notes for a roundtable discussion. Rural Sociological Society, Sacramento, California.
- Grudens-Schuck, N., W. Allen, T. M. Hargrove, and M. Kilvington. 2003. Renovating dependency and self-reliance for participatory sustainable development. *Agriculture and Human Values*, 20(1): 53-64.
- Guthman, J., and R. Cohen. 2004. First field note packet instructions. Community Studies 102-01. University of California, Santa Cruz.
- Hall, S. 2000. Cultural identity and cinematic representation. In *Film theory: an anthology*, edited by R. Stam and T. Miller. Malden, MA: Blackwell Publishers Inc.
- ICO (International Coffee Organization). 2005. Prices paid to growers in Member Export Countries. <http://www.ico.org> (accessed February 3, 2005).
- Kolb, D. 1984. *Experiential learning: experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.
- Lewin, K. 1948. *Resolving social conflicts: selected papers on group dynamics*. New York: Harper.
- Latour, B. 1993. *We have never been modern*. Cambridge, MA: Harvard University Press.
- Long, N. 1992. From paradigm lost to paradigm regained? The case for an actor oriented sociology of development. In *Battlefields of knowledge: the interlocking of theory and practice in social research and development*, edited by N. Long and A. Long, pp. 16-46. London, New York: Routledge.
- Long, N. and A. Long (eds). 1992. *Battlefields of knowledge: the interlocking of theory and practice in social research and development*. London, New York: Routledge.
- Luu, H. 2004. Discovering a different space of resistance: personal reflections on anti-racist organizing. In *Globalize liberation; how to uproot the system and build a better world*, edited by D. Solnit. San Francisco: City Lights Publishers.
- Méndez, V. E. 2003a. Ecosystem services in shaded coffee landscapes of El Salvador: native tree biodiversity conservation and water provision. *Journal of Sustainable Forestry* (in review)
- Méndez, V. E. 2003b. Fair trade, social networks and rural livelihoods in small farmer coffee cooperatives of western El Salvador. Delivered at the 2003 meeting of the Latin American Studies Association. March 27-29. Dallas, Texas.
- Méndez, V. E. 2004. Traditional shade, rural livelihoods, and conservation in small coffee farms and cooperatives of western El Salvador. Ph.D. dissertation, University of California, Santa Cruz, CA. U.S.A.
- Muramoto, J. 2004. Personal communication.
- Pastor, K., and J. Blauert. 2000. *Participatory monitoring and evaluation in Latin America: overview of the literature with annotated bibliography*. Development Bibliography No. 18. Brighton, UK: Institute for Development Studies.
- Peters, P. 1996. Who's local here? The politics of participation in development. *Cultural Survival Quarterly*, 20(3): 22-60.
- Peterson, V. S. 2003. *A critical rewriting of global political economy: reproductive, productive and virtual economies*. London and New York: Routledge.
- Reason, P., and H. Bradbury (eds.). 2001. *Handbook of action research: participative inquiry and practice*. London: Sage Publications.
- Rocheleau, D. E. 1994. Participatory research and the race to save the planet: questions, critique, and lessons from the field. *Agriculture and Human Values* 11(2 and 3): 4-25.
- Rocheleau, D. 1998. Confronting complexity, dealing with difference: social context, content, and practice in agroforestry. In *Agroforestry in sustainable agricultural systems*, edited by L. E. Buck, J. P. Lassoie, and E. C. M. Fernandes, pp. 191-235. CRC Press.
- Rowlands, J. 1997. *Questioning empowerment: working with women in Honduras*. Oxford, UK: Humanities Press.
- Scoones, I. 1999. The new ecology and the social sciences: what prospects for a fruitful engagement? *Annual Review of Anthropology* 28: 479-507.
- Selener, D. 1997. *Participatory action research and social change*. Ithaca, NY: Cornell University Press.
- Sen, G. G., and C. Grown. 1998. *Development, crisis and alternative visions: Third World women's perspectives*. London: Earthscan.
- Smith, L. T. 1999. *Decolonizing methodologies: research and indigenous people*. London: Zed Books.
- Stringer, E. T. 1999. *Action research: a handbook for practitioners*. Thousand Oaks, CA: Sage Publications.
- Villareal, M. 1992. The poverty of practice: power, gender and intervention from an actor-oriented perspective. In *Battlefields of knowledge: the interlocking of theory and practice in social research and development*, edited by N. Long and A. Long, pp. 247-267. London, New York: Routledge
- Yin, R. K. 1994. *Case study research design and methods*. Thousand Oaks, CA: Sage Publications.

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<sup>1</sup> For more information on PRA see Chambers 1994a, b, and c

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