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Collective Action for Managing Natural Resources

A manual for identifying stakeholders

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International Development Research Centre



Centro Internacional de Agricultura Tropical
International Center for Tropical Agriculture

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Preface

This manual is one result of a participatory research project entitled *Collective Action for Microwatershed Management: A Research Project on Participatory Action in the Andean Hillsides*. This research, still ongoing, is part of a larger hillside project (*Community Management of Watershed Resources in Hillside Agroecosystems of Latin America*) conducted by CIAT. The *Collective Action* Project was developed in two microwatersheds of the Cabuyal River in the Department of Cauca, Colombia. Its objectives were to foster and facilitate collective action among the users of the microwatersheds with respect to the daily management of the watersheds' natural resources. These users thus became capable of dealing with problems that individual and isolated action could not resolve efficiently.

During the course of this research, users have been faced with specific problems of managing and conserving natural resources such as erosion control, restoration of soil fertility, pest control (white grubs and leafcutting ants), and reforestation, starting with nurseries for exotic and native species (guadua bamboo [*Bambusa guadua*], calliandra [*Calliandra* sp.], “nacedero” [*Trichanthera* sp.], and “canelo” [*Drimys* sp.]).

The collective management of the natural resources of a watershed is a long-term process. The first indispensable, and fundamental, step of this process is to *identify stakeholders*—the theme of this manual. Nevertheless, the application of the methodology for identifying stakeholders is only the beginning toward a deeper understanding of the structures and dynamics

that motivate and facilitate collective management of natural resources.

Future research will be directed toward the social organization that revolves around collective management of natural resources; toward solving, through negotiation, the conflicts that arise among users of a microwatershed; and toward the application of this methodology to other microwatersheds.

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We sincerely thank Danida and the IDRC for financing both the research and the manual's publication in Spanish and English. Thanks are also due to Jorge Rubiano, Liliana Hurtado, and GIS at CIAT, as well as to Carlos Arturo Quirós and to the IPRA Project at CIAT from whom we have borrowed some methodological elements.

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Introduction

This manual or primer is a methodological tool by which we can facilitate collective action to permit the adequate management of natural resources within a given area.

Let us consider two aspects of the manual:

- Audience: the manual is directed at extension workers and researchers who work with farmers and other users of a region's natural resources.
- Objective: to improve the users' management of those resources, not only on their farms, or in a particular sector of their forests, or certain sources of water, but also as a totality of the landscape or microwatershed (sometimes called "mini-watershed") in which they live.

An inherent characteristic of resource management is the need for it to be always carried out in a context where multiple interests exist, some in harmony and others in mutual conflict. The intervention that attempts to improve natural resource management (NRM) must therefore take into account the interests of all those who participate in, or are affected by, the management, that is, of all the stakeholders involved.

The methodology described in this manual thus has a double purpose: first, to identify different interests; and, second, to facilitate the process whereby stakeholders openly negotiate their interests and reach agreements and concrete proposals about NRM. The methodology has two characteristics:

- It comprises a series of meetings, interviews, and analyses, through which the extension worker or researcher plays the role of facilitator.
- It encourages participants in the process—the users of natural resources—not only to recognize the need for concerted, or collective, management of natural resources, but also the potential profit (or advantages) that derive from that management.

The manual covers only the identification of interests, problems, and conflicts of the users with respect to a given set of natural resources. The negotiation of interests and implementation of concrete proposals for NRM, however, should be considered as incorporated into the process.

The facilitator of the process, whether person or institution, should be aware that false expectations can be created or those well founded can be frustrated. The facilitator should not, therefore, initiate the integrated process (i.e., analysis + problem identification + negotiation of agreements) if it cannot be completed, that is, if concrete proposals cannot be attained and implemented.

Collective Management of Microwatersheds

Three examples follow to illustrate those situations where this type of management is needed:

- Doña Ana lives in a microwatershed. She complains that however much she combats leafcutting ants with insecticides, they reappear and eat her cassava crop. Where do they come from? Simply, from her neighbor's untreated anthills.
- The people who receive water from a spring in the microwatershed are worried because the owner of the land above the spring has felled all the trees to plant pasture, and they know that, without trees, water no longer flows.
- Another neighbor, also above the spring, sprays his crops and the pesticides flow into the spring with the run-off from his cultivated plots.

The foregoing examples indicate that many problems related to the management of natural resources—such as pests, water distribution, and erosion—extend beyond the boundaries of a farm, precisely because of their biophysical nature. That is, they affect flora and fauna and physical phenomena (e.g., soil, water, and air) that are found across several settlements within a microwatershed.

These problems therefore demand collective action among farmers and other watershed users to improve the management of the watershed's natural resources.

This means that watershed users (or a group of them) come to agreement on the following questions:

- What should be done?
- Who is going to do it?
- How, when, and where should it be done?

When users reach agreement and implement decisions we call this *collective action*. Appendix 1 (page 41) summarizes the methodology, offered in this manual, to provide answers to the above questions and stimulate action.

Collective Action Is Difficult

Collective action is important, not only for improving NRM but also for increasing agricultural production. Nevertheless, in practice, collective effort is rare. We must find out why this is so. Some possible explanations are that:

- The concertation of wills and opinions takes time. Thus, farmers may prefer to spend time on something that they consider to be more productive or that will give immediate or more certain results.
- Farmers are uncertain of their neighbors' solidarity, that is, they doubt that "if I do something, my neighbor will also do it".
- Neighbors may have many differences of opinions, or may even be in conflict, thus making communication a complicated activity.
- The extent of a particular problem is not known, that is, whether the problem is shared by all neighbors or by only some of them.
- Farmers do not always fully appreciate what they can gain or improve through collective action. As a result, each person focuses on solving problems that he or she believes can handle on his or her own.

The External Facilitator: An Important Element

Collective action requires a third party, that is, a person or institution who comes from outside the group of users, but who can help facilitate the process of bringing users together to undertake collective action.

- The facilitator is necessary if farmers of a microwatershed are to get together and begin discussing problems they have in common or those they cannot solve without each other's cooperation.
- This person or institution comes from outside the microwatershed and can assume some of the costs and time that, without the intervention, the farmers would have to invest themselves in problem analysis and coordination of activities to solve them. Moreover, the facilitator can give voice to conflicts that users themselves find difficult to explicitly discuss.

Preconditions for Collective Management of Natural Resources

For collective action to be successful, it must be carried out, first, in contiguous areas and, second, by *all* the users in those areas.

These requisites come about because of the biophysical nature (explained earlier) that characterize many NRM problems.

Trust and Direct Communication

To determine the size of the area where work will be carried out (Box 1), researchers must reconsider the

Box 1

Selecting the Study Area

We decided to work with microwatersheds because they encompass many of the NRM problems, such as those related to water and soil.

Through a geographic information system (GIS), we identified all microwatersheds that measured 25 to 150 hectares in the area targeted for research (Figure 1). We then analyzed the potential of each microwatershed as a study site.

The criteria guiding this type of survey depend on the objectives of the institution conducting the work. These criteria may include, for example:

- To work where the supply of potable water is critical;
- To work where natural resources are most degraded;
- To work where conflicts related to NRM are greatest.

Although criteria for choosing a given microwatershed may differ, what is important is that they be clear.

factors tending to make collective action difficult, for example:

- The time required for farmers to communicate with each other;
- The level of mistrust among neighbors;
- The level of ignorance of the situations in which other neighbors find themselves and of the problems they face.

Farmers must be able to meet, and get to know each other, if they are to establish, first, mutual trust among themselves and, later, confirm that everyone is abiding by the agreements that had been negotiated collectively. To achieve such rapprochement, two conditions must be met:

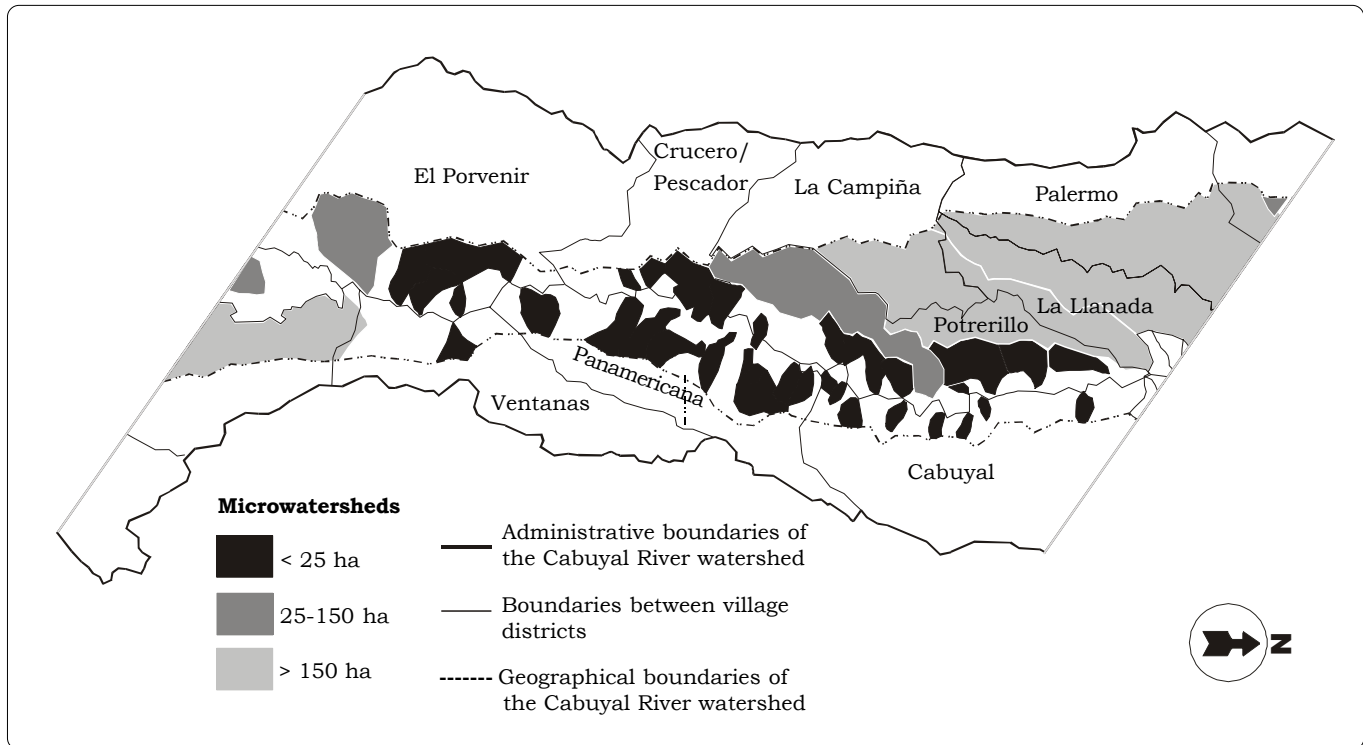


Figure 1. Microwatersheds in the study area in the Cabuyal River watershed, southwestern Colombia.

- That the study area not be too large, so that users will not spend too much time traveling to meetings;
- That each group of users be relatively small, for example, the chosen area encompasses between 20 and 40 families.

Collective Action Is Necessary

Once the study area has been established and the users who inhabit it have been identified, then collective action can be promoted. The first task is to help users perceive that certain NRM problems in the microwatershed need collective action to be solved, or at least to arrive at a best solution.

Showing a drawing (e.g., see Figure 2) is an effective way of helping people understand the importance of collective action.

The drawing shows an imaginary rural landscape in which various people are engaged in different activities:

- Fishing, but apparently without luck;
- Spraying a tomato crop with pesticide; a nearby outhouse throws raw sewage directly into the river;
- Clearing brush from a farm plot by burning;
- A neighboring farmer worries about what the burn may do to the maize crop.

This imaginary landscape serves for a group analysis of what happens in the landscape and of the relationships that exist between the different users shown. It provides, at the same time, a departure point for an initial analysis of the situation in a real microwatershed.



Figure 2. An imaginary rural landscape showing interventions by several neighbors.

First Meeting: Presenting the Idea of “Collective Action” and Analyzing Its Importance

In this meeting, a group analysis of an imaginary landscape is first done, immediately followed by an analysis of the real situation in the microwatershed.

Meeting Place

Where to meet? Before sending invitations, potentially suitable meeting places in the microwatershed must first be considered. Almost inevitably, one place is more convenient for one sector of the microwatershed than for others. Furthermore, a given place may be associated with a specific group of people and, for that reason, other groups may feel uncomfortable going to meetings there.

A neutral venue or alternative meeting places must be found so that one sector of the microwatershed is not always favored.

The Meeting’s Objectives

The general objectives would be to present a collective action project to the users of a microwatershed, and to analyze the importance of collective action for NRM in that microwatershed.

Specific objectives would be to:

- Determine the potential interest that the watershed’s users may have in the project.
- Obtain the users’ first reactions: if they would like to participate or not in the project.

- Invite users to individually reflect on those NRM problems that would entail collective action for their solution.

The meaning of phrases such as “natural resources” and “collective action” are unlikely to be clear to everyone. Even so, the First Meeting is not the time for clarifying these concepts, when discussion is most likely to be taken up only by the more extroverted participants.

For the same reason, it is also premature to get involved with problems related to NRM at this First Meeting. Probably only the extroverts will speak up, thus biasing the identification of problems and their possible solutions and denying the quieter people the opportunity to participate in the defining of problems and their possible solutions.

Conducting the First Meeting

Step 1: Introducing the users

The facilitators must inspire confidence; they must break the ice right at the beginning to combat timidity and bridge the distances within the participating group and between the group and facilitators. For example, they can:

- Use names instead of titles.
- Pin easily read name-cards on each participant’s chest.
- Initiate games and group dynamics activities.

As they arrive, participants should be encouraged to join in drawing a map of the microwatershed, using different materials, even stones and twigs if necessary. Two aims would be accomplished by this map-making activity:

- The time used waiting for all participants to arrive would be put to good use; and
- The participants would be introduced to the theme of the First Meeting.

Extension workers and researchers then introduce themselves with comments about their work, the institution that employs them, the projects they have collaborated with in the region, and other background material.

Because all the users live in the same microwatershed, when introducing themselves they should say where, in the microwatershed, their farm or land is situated.

This first step should take only 10 to 15 minutes if the participants number 20 persons, and an additional 20 minutes if a map is drawn (an optional activity).

Step 2: Clarifying expectations and introducing the theme

Participants are likely to have different expectations of the meeting's goal. Facilitators must therefore make the following three points clear:

- The meeting's real goal.
- What participants are expected to do in the collective action project.
- What facilitators are expected to do now, and at future meetings.

The facilitators can use the following questions as guidelines:

- Who invited you? How did you hear about the meeting?
- From what you have heard, what is this meeting about?

- What do you think the meeting will be about?
- What do you expect to get or to know when the meeting is over?

The opinions of those who are focused on the theme are highlighted to emphasize the meeting's objective. The participants' answers will help identify those themes that do **not** belong to the meeting. At this stage, the question of what they understand by "natural resources" can be asked.

This step should last 10 minutes.

Step 3: Group analysis of an imaginary landscape

Participants are asked to come forward and study a drawing of an imaginary situation occurring in a landscape. Later, they are asked questions about the situation to stimulate conversation on the subject (Figure 3).

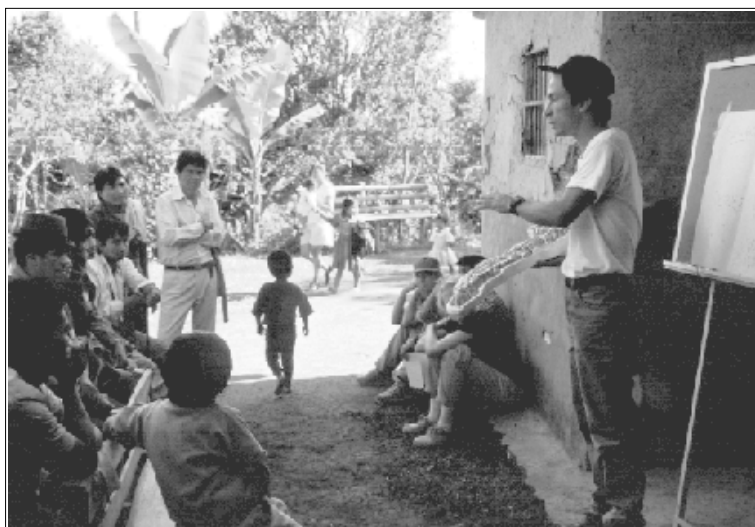


Figure 3. An extension worker (Jorge) explains the interrelationships between stakeholders in natural resource management, using the drawing (Figure 2) behind him and a papier-mâché model (in Jorge's right hand).

The drawing should illustrate the greatest possible number of conflictive situations found in the landscape and the relationships that exist between the different situations. A drawing similar to the one in Figure 2, preferably colored, gives the best results.

The facilitators can use the following questions as guidelines:

- What do you see in this drawing?
- What is this man doing?
- How do you see this woman?
- Is this woman worried? Why? (or Why not?)
- What is happening in this field?
- How do you see the relationships between the different persons in the drawing?
- What would happen if these persons talked to each other?

This step would take 20 minutes.

***Step 4: Considering the real microwatershed:
the possible existence of conflicts***

The farmers are asked to search their minds for similar problems to those in the drawing occurring in their microwatershed, and to comment on them.

They should think about these problems as NRM problems that cannot be solved individually but only through some sort of cooperation, coordination, or collective action between users of the microwatershed.

The exercise should be handled as a “brain-storming” session where each farmer says what he or she thinks about the subject under discussion and his or her opinion is written on a flip chart by a facilitator.

- Opinions and suggestions should come from the participants, not the facilitators, and all are invited to take part, especially those who are less extroverted.
- The facilitators write the different ideas down on the flip chart without looking for consensus.
- The ideas are written clearly, using the participants' own words; all the participants must be able to easily read what is on the flip chart.

The facilitators should make it clear that the analysis concerns problems that are of a collective (not individual) nature, that is, that they involve more than one person, whether for effect or cause. The possible solutions to these problems would be studied in following meetings.

This First Meeting is only to gauge the participants' interest and get an initial feeling or estimate of the perceived problems in NRM. It is not used to draw up a list of problems on which to work.

This step would last 20 minutes.

Step 5: Possible contribution of the collective action project to solving NRM problems

In this step, the expectations that the farmers may have of the meeting and of the project are further clarified: the analyses carried out so far will do much toward achieving this. The following points, which have to do with the institution responsible for the collective action project, are now considered:

- To what extent can the institution finance technical solutions to NRM problems?
- Will it provide, as intermediary, contact with other institutions that may have such solutions?
- Will it provide access to information needed for finding solutions?

- How far will the institution go in helping users of the microwatershed get together and negotiate with each other.

The facilitators must explain here that, while they can assist, the essential factor in solving many NRM problems is cooperation or collective action between users, for example:

An extension worker develops a technically efficient method to control leafcutting ants. One farmer applies the method but the neighbor does not. The ants, coming from the second farmer's untreated crops, invade the first farmer's crops. Consequently, the practice of control becomes useless because the two farmers have not coordinated their activities.

This step would last 10 minutes.

Step 6: Gauging the interest in the project

The potential interest that microwatershed users may have in participating in a collective action project is assessed by asking the meeting's participants to give their opinions about such a project.

- At this point, they are not asked to make a final decision; rather, they are asked to go home and think about it and discuss it with their families and neighbors.
- A second meeting is proposed, at which a definitive poll will be taken on the users' interest in joining the project.

This step would last 10 minutes.

Step 7: Proposing future activities

Once the facilitators have proposed a second meeting to make a more definitive decision on participating in the project, the participants are asked if project personnel

may interview some of the microwatershed users on their ideas and concerns with respect to the NRM problems in the microwatershed.

- The objective is to go further with the analysis that has just been done by seeking different points of view, which always exist in a populated area.
- The facilitators propose that these interviews take place between the First and Second Meetings. The project personnel promise to present the results of the interviews at the next meeting.

This step would last 15 minutes.

Step 8: Thanking the participants

The microwatershed users are thanked for attending and for their contributions to the meeting. The final act comprises a formal farewell to the entire group.

This step would take 2 minutes.

Stakeholders and Interviews

Diversity of Interests: The Context for Collective Action

Complexity and diversity are key concepts for describing the context in which collective action, aimed at making NRM more efficient, will be carried out. Diversity manifests itself, not only in soil types, vegetation, rainfall, and other factors, but also among the users of an area, even if that area is small. For example, in the Department of Cauca, Colombia, a microwatershed of only 44 hectares was inhabited by 20 families. Yet, there were four ethnic groups, two religious denominations, commercial and subsistence farmers, landowners, and caretakers.

The foregoing characteristics, and their combinations, give people different perspectives, concerns, and priorities with respect to NRM. This being so, to effectively improve the NRM of a given microwatershed, project personnel must identify and understand all the stakeholders, or types of users, who live or work in that microwatershed.

What Happens If Not All Stakeholders Are Identified?

Box 2 gives an example that illustrates the consequences of not identifying all the stakeholders and thus ensuring their participation in the collective action: all efforts to improve NRM in the microwatershed simply came to naught.

Box 2

The Consequences of Not Identifying All Stakeholders

In August 1994, a fire destroyed part of the microwatershed's protection zone of the Cabuyal River. This zone had been created by ASOBESURCA (Spanish acronym for "Users Association—Cabuyal River Microwatershed") at the beginning of the same year to protect water sources important to the inhabitants.

Rumor had it that the fire was a protest against the creation of protection zones in general. In fact, many people in the area were seeking land and had the following opinions of the protection zones (which were 10, 30, or even 50 meters wide):

- They comprised wastelands that were "good only for breeding snakes".
- They called for a sacrifice that probably benefited the inhabitants lower down the microwatershed more than those closer to the protection zones.

Motivated by this incident and supported by CIAT, ASOBESURCA decided to analyze the fire problem. It began by studying the fires commonly used to clean fields of harvest residues and weeds.

The analysis soon showed that certain inhabitants of the microwatershed were not represented in ASOBESURCA, for example, those who were seeking land, people who were short of labor, and indigenous groups who had expressed strong opposition to the creation of microwatershed protection zones right from the beginning.

Consequently, ASOBESURCA invited more people to participate in the analysis of the problem and in the research of alternatives that would substitute the practice of burning fields.

How Are Stakeholders Identified?

Individual interviews are useful for identifying different stakeholders, and learning their opinions, perspectives, concerns, and questions regarding NRM, that is, their interpretations, or *constructions*, of microwatershed management (Figure 4).

Interviews should be on an individual, not group, basis. Indeed, latent conflicts or existing problems, perceived by some users, do not surface in large meetings, where there are always individuals who, for different reasons, express no opinions, perhaps because:

- They are timid.
- They are afraid to confront the opposition present.
- They know that, if they have done something contrary to custom or rules, they may be reproached.



Figure 4. Marleny Aranda (a field assistant) carries out an individual interview.

The individual interview provides increased probability of obtaining more confidential information about the perceptions, concerns, and personal interests involved in the use of natural resources. Box 3 shows a method for selecting people for interview.

Box 3

Selecting Individuals for Interview

The users to be interviewed are chosen by applying the contrast or maximum variation sampling method.

The first person to be interviewed is chosen at random. He or she can be a local leader or someone already known to the interviewer.

The answers to part 6 of the interview (Box 4, p. 23.) serve to identify the next individuals to interview. Each person interviewed is asked for the name of a watershed user who may hold a different point of view. The person suggested will therefore be the next to be interviewed, and so on, until all possible points of view are found.

Sometimes a person being interviewed has doubts about recommending someone else for interview, or does not wish to do so. There are two options in this case:

- Interview someone nominated in a previous interview where the respondent had suggested two or more persons, or
- Select someone else at random and so continue the process.

Individual Interview

Box 4 gives an example of the form recommended for use as a guide to conduct the interviews. It contains six questions, covering six topics:

- The first two topics aim to obtain an idea of users' different points of view and concerns as regards the use that they themselves make of natural resources.
- The next two topics explore how each interviewed user believes that the use made of natural resources by other users affects his or her own possibilities of using those same resources. These two topics serve to show if interdependence exists between the use made of natural resources by those interviewed and that by their neighbors.
- The fifth topic encourages the person being interviewed to think about the need for collective action.
- The sixth and final topic serves to ensure that all stakeholders have been identified (see also Box 3).

Box 4

Form for Individual Interviews Used to Identify Stakeholders

Date:	Interview number:
Interviewer's name:	Name of microwatershed or area:
Name of stakeholder interviewed:	
1. <i>How do you and your family use the natural resources in this area?</i>	
2. <i>What problems have you and your family experienced with respect to the natural resources?</i>	
3. <i>From working in other areas, we have seen that conflicts over the use of natural resources can be common among people living in the same area. Would you give some examples of such conflicts in your area?</i>	
4. <i>Have you been affected by the use other people have made of the natural resources?</i>	

(Continued)

Box 4. (Continued.)

5. *What do you think is needed to solve these problems?*

6. *Thank you for telling us all this. It is very useful indeed. However, probably other people in this neighborhood have different opinions to yours. Will you give us the names of one or two of these people? We would also like to interview them.*

Name(s):

Thank you very much for your help. You have given us very important information about your area.

Interviewer's construction:

Graphic interpretation

Natural Resources and Conflicts

What Does the Term “Natural Resources” Really Mean?

Sometimes the meaning of the term *natural resources* is not clear to farmers. Some believe that “resources” means only “capital”; others think that it means only trees and water (leaving out other natural resources such as soil, vegetation other than trees, and fauna). To overcome this difficulty, an interview should begin with a discussion about the concept of “natural resources”.

- A sometimes useful technique is to sit in a spot that provides a good view of the microwatershed, discuss the view, and finish by defining what “natural resources” are.
- A drawing of a landscape, such as that which appears in Figure 5, can also be used.
- Mentioning resources that are not at first identified as such, by asking, for example:
 - What do you think about birds? Do they do damage crops?
 - What do you think about insects and their larvae (or caterpillars)? Do they attack crops?
 - What about air, weather, and so on? Are they also natural resources?

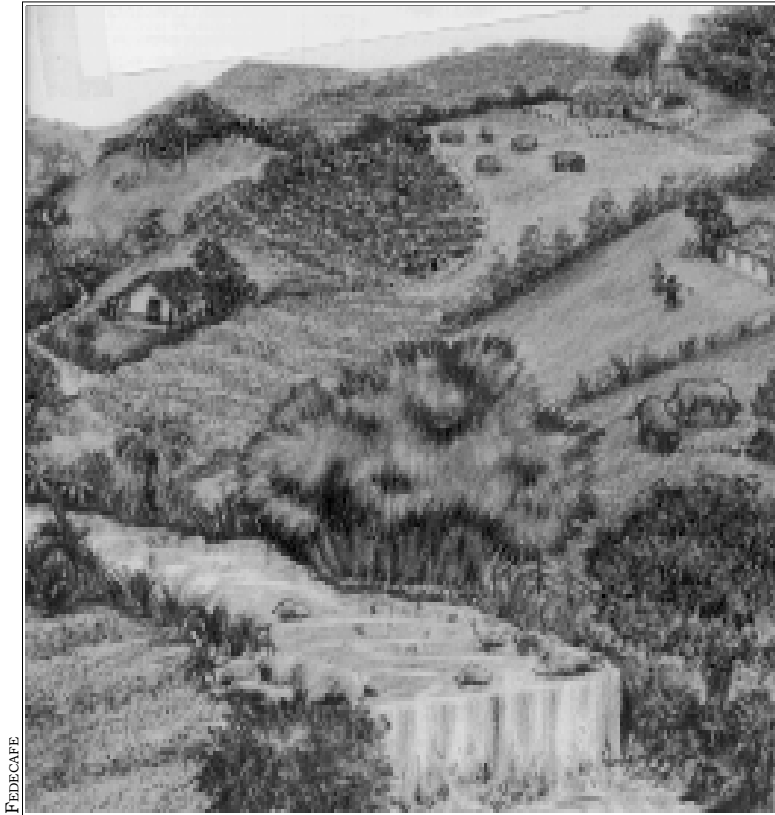


Figure 5. A drawing of a landscape to illustrate and clearly define the concept of natural resources.

Post-Interview Analysis

An analysis of the central ideas, perceptions, and concerns expressed by the person involved is made after every interview. These elements are used to formulate the interpretation or point of view (or “construction”, according to some authors) that the person interviewed has of the NRM within the microwatershed.

When the next person interviewed has expressed his or her opinions, perceptions, concerns, etc., he or she is presented with the “constructions” of those previously

interviewed so that he or she can comment on them. Such phrases as "...we've heard that...what do you think about that?" and "...other people have told us...how does that go with what you think?" are used to invite the user being interviewed to comment on themes and perceptions expressed in previous interviews while preserving the confidentiality of those who had been interviewed earlier.

The process of interviewing and asking for names of other individuals for interviews should continue until the perceptions being received begin to repeat themselves and are reduced to two or three constructions.

The different points of view that emerge from the interviews must be compared and their contrasts studied to identify and understand the different—perhaps opposing—interests present in the area and that determine the type of management that the natural resources receive.

The First Construction of Natural Resource Management: Resource Use and Resulting Conflicts

When the decision is made to terminate the interview process (including the requests for names of individuals for subsequent interviews), the interviewers, or the institution involved, should get together. Starting by synthesizing the perceptions and constructions recorded in the individual interviews, the interviewers should formulate constructions of the use given to the natural resources, of the conflicts resulting from this use, and of the stakeholders involved. These constructions comprise a synthesis, which is developed progressively by following the same procedure used for the interviews, that is, according to the following themes:

- The uses made of natural resources.

- Components of the problem: (1) the difficulties perceived by users who wish to make a particular use of the natural resources; and (2) the conflicts or disagreements that have occurred as a result of such uses.
- The extent to which users of the area's natural resources can be grouped into distinct stakeholder groups. Three aspects can be discerned: the use that they make of the natural resources, the problems that they perceive with respect to such use, and their position with regard to the conflicts and disagreements that such use provokes. That is, the stakeholders who exist with respect to the management of natural resources are identified.

With respect to the last theme, sometimes the three aspects by which stakeholders are "identified" or determined coincide with certain factors that characterize the users of an area's natural resources, such as race or ethnicity, gender, and location (upper valley, lower valley). Sometimes, however, such an overlap is absent. What is important is that the perceptions regarding natural resources (use and related problems), expressed in the individual interviews, serve as a basis for identifying stakeholders, rather than some predetermined idea about which factors might constitute stakeholder groups.

At this point, it should be stressed that when a group of users does not mention a specific problem (e.g., pollution of spring water), this does not necessarily imply that the group does not have an interest or "stake" in that problem. On the contrary, even though the group is not affected by the problem, the members' use of natural resources may be the very cause of the problem. When analyzing stakeholder groups, care must be taken to distinguish between those who *suffer* from a problem and those who *cause* it through their particular use of their area's natural resources. This distinction makes the

dependence existing between users of a microwatershed evident and emphasizes the need for collective action (Appendix 2, p. 45).

Conflicts among Users of a Microwatershed: Initial Discussion

Ideally, the construction made by the institution is presented at a meeting of all the microwatershed's users. This meeting, then, becomes the Second Meeting.

As stated previously, it is difficult to get neighbors to speak freely about their conflicts in a large meeting. Such open discussion is simply unacceptable to many social groups. The construction must therefore be formulated and presented in such a way that the people who were interviewed are not compromised. These persons have said things in an interview that, most probably, they would not have said in a large meeting. The confidential nature of these interview statements must be respected.

In contrast, the facilitating institution, who comes from outside the microwatershed, is not subject—at least not in the same way—to the social mores that apply to the users (e.g., the “taboo” on the explicit discussion of conflicts). The institution therefore plays an important role in its relationship with the watershed users: it becomes a voice that can express, in front of all users, the existing conflicts over natural resources.

The objective of the Second Meeting is to initiate a dialog so that negotiation on the adequate use of these resources can become possible. The institution's construction serves this and other purposes.

The Institution's Construction of the Use of Natural Resources

The construction that the institution makes of the use of natural resources and of the conflicts resulting from that use should not be presented in the Second Meeting as the definitive construction. On the contrary, the institution must emphasize that the project team had prepared the construction and, for that reason, it may contain mistakes because the team members do not live in the microwatershed and may have misinterpreted some of the situations.

After presenting its construction, the institution invites the users at the Second Meeting to make their observations, first in the meeting itself, then in smaller groups.

The objective is to modify the institution's construction and thus obtain a shared construction.

In its construction, the institution states that, in its view, specific groups of stakeholders exist in the microwatershed. This idea is also explored in the Second Meeting.

As discussion continues, it will become evident to which group of stakeholders different participants belong. The Second Meeting should then be divided into "committees" or working groups, representing each stakeholder group, who then have the task of revising and perfecting the institution's construction.

The constructions made by each working group form the starting point for arriving at the final version of the construction, which then becomes a *shared construction*.

Appendix 2 shows an example of how a facilitating institution arrives at a shared construction.

Second Meeting: Toward A Shared Construction of Natural Resource Management

At this meeting, the participants and the facilitating institution work together to develop a construction of the use made of natural resources in the microwatershed and of the problems and conflicts that arise from such use.

Meeting Place

The same place as for the First Meeting (p. 10), or equivalent.

The Meeting's Objectives

To present the institution's construction of the use of natural resources in the microwatershed and of the resulting conflicts with a view to perfecting it and thus producing a final construction with input from all watershed users. This shared construction becomes the basis on which plans for improving the collective management of natural resources can be developed.

Before discussing in detail the Second Meeting, you may want to look at Appendix 1 again for a resume of what has been covered in the manual so far.

Conducting the Second Meeting

Step 1: Defining the objectives

The facilitating institution greets the participants. The purpose of the meeting, and of the collective action

project in general, are then explained. If participants are seen as timid, techniques of group dynamics can be used to encourage participation.

The step should take 5 minutes.

Step 2: The facilitating institution presents its construction

The institution presents its construction, based on the individual interviews, of the uses of the microwatershed's natural resources and of the conflicts arising from those uses (Figure 6). During the presentation, the facilitators should ensure that:

- a. The persons interviewed are not compromised by mentioning names.
- b. A graphic method of presentation is used. Techniques can include:
 - If the participants are literate, part of the presentation can be made with large titles,



Figure 6. The institution presents its construction of the uses, problems, and possible conflicts in the microwatershed.

followed by explanatory text. Depending on the cultural ambience, the titles should not contain words such as “conflict”.

- Drawings used should illustrate the conflictive uses of natural resources within the microwatershed and the location of those users causing, as well as of those being affected by, conflicts arising from a particular type of NRM.
 - Text can be presented in two ways: with regard to the area’s different natural resources, or with regard to the microwatershed’s stakeholders.
- c. During the presentation, answers to the following questions must be sought:
- How are natural resources in the microwatershed used?
 - What difficulties or problems arise when one wishes to make a particular use of the natural resources?
 - What conflicts or disagreements have occurred with respect to using the microwatershed’s natural resources?
 - Who are the microwatershed’s stakeholders?
- d. The facilitators should emphasize that people from outside the watershed prepared the construction, which may therefore contain errors.

This step should take 15 minutes.

Step 3: Discussing and modifying the construction

The institution invites participants to make observations on the institution’s construction, with a view to modifying and improving it. Any comment—pro or con—is welcome.

If the participants make few comments, the facilitators should pass rapidly to the next step.

This step should take 15 minutes.

Step 4: Stakeholders discuss and modify the institution's construction

The construction contains a section in which the watershed's stakeholders are identified. As soon as this section is discussed, the participants are invited to group themselves into "committees" or small working groups according to where they feel they belong to.

The task of these working groups is to further modify and/or elaborate those parts of the institution's construction in which they consider themselves to be stakeholders so that they can adjust the construction according to their own perspectives (Figure 7). Four questions will help to get discussion going:

- What are the problems?



Figure 7. A user (Holden) presents a modified construction of the uses, problems, and possible conflicts in the microwatershed.

- What causes those problems?
- What has been done in the past to solve these problems?
- What can be done now to solve the problems?

This step should take 45 minutes.

Step 5: The constructions elaborated by the “stakeholders” working groups are negotiated and combined into a shared construction

When assembled en masse again, the participants present the modifications and elaborations made by each stakeholder working group to the institution’s original construction. The participants are asked to comment on the modifications.

After discussion, a shared construction, which seeks to accommodate all perspectives, is negotiated.

If difficulties arise in achieving consensus on the construction, the facilitators can propose that negotiations between the stakeholders continue and that another meeting date be chosen for elaborating the shared construction.

This step should take 30-45 minutes.

Step 6: Proposing future activities

The institution congratulates the participants on having achieved two things:

- Finishing a very difficult task, which consisted of listening to (and trying to understand) problems, perceptions, and concerns that were sometimes opposed to their own.
- Creating a shared construction of the problems involved in the NRM of their microwatershed.

Based on this conciliation and this mutual understanding, reflected in the shared construction, the next task is to develop an action plan for achieving the coordinated or collective management of natural resources in the microwatershed to solve the identified problems. The institution also explains how it can support this process.

This step should take 15-30 minutes.

Step 7: Gauging the users' interest in participating in the project

In the First Meeting, a poll was taken on the *possible* interest watershed users may have in participating in a collective action project. This time, the poll is taken to see if participants *do* want to join the project proposed by the institution, that is, do want to attempt to improve the management of the microwatershed's natural resources through collective action.

If the answer is “no”, the facilitators should go straight on to Step 9.

This step should take 10 minutes.

Step 8: Commitments and future activities

The steps or activities needed to advance from what could be termed a diagnostic phase to an action phase are explored. That is, the elements required to develop and implement an action plan related to the problems already identified must be discussed. Sometimes, certain activities must be undertaken first, for example, an inventory of the watershed's natural resources and their use (e.g., natural springs); an assessment of the state of natural resources; and searching for information outside the microwatershed for possible solutions to the problems.

Exactly what is needed obviously depends on the specific situation in which the watershed users find themselves and the problems they would like to address.

To accomplish all of the above steps—from the presentation of the institution’s construction, through the development of stakeholder-based constructions and the negotiation of these into a shared construction, to the identification of the steps necessary to develop an action plan—may be more than what can be accomplished in one meeting. If the participants show fatigue, then a small group, comprising representatives of all the stakeholders, should be chosen to make a work plan (or agenda) for the next meeting.

This step should take 15-45 minutes.

Step 9: Thanking the participants

The institution’s team thanks the users for their participation and makes farewells.

This step should take 2 minutes.

Negotiation and Proposal

The shared construction, that is, the construction that is made with everyone's participation, becomes the basis on which to design action plans for improving NRM through concerted or collective action (Figure 8). The shared construction is, above all, a starting point, where the perceptions and priorities of not only the more powerful and influential users (the dominating local elite), all users in that watershed are taken into account.

The development of a shared construction that reflects the perceptions of all watershed users with respect to NRM problems and their causes rather than just those of



Figure 8. Collective action in natural resource management builds on the principles of a shared construction.

a local elite is a significant achievement on the road toward collective NRM. Nevertheless, it is only the beginning of a long process to improved NRM.

After this stage of negotiation between stakeholders, the formulation and implementation of concrete proposals for improving NRM begin.

- Obviously, negotiations can become complicated.
- It is rarely wise to limit negotiations to those proposals for which consensus among users can be immediately achieved. On the contrary, to effectively deal with the problems at stake, negotiations must also include proposals that cause controversy.
- The objective is to reach compromises between the stakeholders involved and their conflicting interests and, as a part of this, to identify associated compensation mechanisms.

Extension workers can facilitate this negotiation; they will need to be creative in ensuring that all users will feel that they will gain from their participation in the collective action process, whether:

- Directly, because the new ways of managing natural resources in the microwatershed will generate positive changes; or
- Indirectly, because of the recognition they will enjoy from their neighbors of the skills that they exhibit and the personal sacrifice for the good of the community that they make by taking part in the process.

Concluding Remarks

The factors and processes that make people participate in collective action are not yet fully understood. Nevertheless, we hope that, through concrete experiences and through collaboration and feedback between organizations working to facilitate collective NRM in rural areas, new insights will be gained that will lead to the development of practical approaches and methodologies.

Appendix 1

Step-by-Step Summary of the Stakeholder Analysis

Activities and objectives	Steps and criteria
<i>Selecting the study area</i>	
<p>Facilitate direct communication</p> <p>Guarantee users an opportunity to meet face-to-face</p>	<p>Choose areas that:</p> <ul style="list-style-type: none"> are biophysically contiguous, are between 25 and 150 ha, and contain 20 to 40 families <p>Define other selection criteria</p>
<i>The First Meeting</i>	
<p>Present the proposal for collective action (CA)</p> <p>Present the idea of CA in NRM and its importance</p> <p>Discuss the possible existence of NRM problems in the microwatershed</p> <p>Explore the users' potential interest in participating in the project</p>	<p>Introduce the facilitators</p> <p>Clarify expectations and introduce the CA proposal</p> <p>Collectively analyze a drawing of activities in an imaginary microwatershed</p> <p>Make a first assessment of possible NRM problems in the microwatershed</p> <p>Explain how the CA project will contribute to improved NRM</p> <p>Ask the users about their potential interest in participating in the CA project</p>

(Continued)

Appendix 1. (Continued.)

Activities and objectives	Steps and criteria
	<p>Propose future activities: the Second Meeting and individual interviews</p> <p>Give thanks and make farewells</p>
<i>Individual interviews</i>	
<p>Listen to all existing points of view on NRM</p> <p>Initiate analysis of NRM problems</p>	<p>Interview a family chosen at random (can be a local leader, family of acquaintance, etc.)</p> <p>Analyze the main ideas, perceptions, and concerns of users with regard to NRM in the microwatershed to make a first interpretation (or construction) of the situation</p> <p>Interview the second family (identified in the first interview), who should have different perceptions</p> <p>Present the second family with a construction based on the interview with the first family</p> <p>Analyze the main ideas, perceptions, and concerns of users with regard to NRM in the microwatershed to make the second construction of the situation</p> <p>Interview other families (identified in the previous interviews) with different perceptions</p> <p>Present the constructions made on the basis of the previous interviews</p>

(Continued)

Appendix 1. (Continued.)

Activities and objectives	Steps and criteria
	<p>End the interview process when no more variations in the information are received and when the families named as potential interviewees have already been interviewed</p>
<p><i>The institution formulates the first formal construction on the use of natural resources and related conflicts</i></p>	
<p>Specify different use and management of the microwatershed's natural resources</p> <p>Analyze more deeply the NRM problems</p> <p>Identify conflicts related to NRM</p> <p>Identify stakeholders</p>	<p>Find out what uses are made of the microwatershed's natural resources</p> <p>Analyze interdependencies in NRM and related problems</p> <p>Understand the conflicts and disagreements that have arisen as a result of NRM</p> <p>Specify the stakeholders and identify the factors that define them as such</p>
<p><i>The Second Meeting</i></p>	
<p>Allow existing conflicts on natural resources to be discussed but do not compromise those who were interviewed</p> <p>Initiate dialog and discussion on the adequate use of natural resources</p>	<p>Clarify users' expectations</p> <p>Present the facilitating institution's construction</p> <p>Discuss and modify the construction in the Second Meeting</p> <p>Stakeholder-based working groups discuss and modify the construction</p>

(Continued)

Appendix 1. (Continued.)

Activities and objectives	Steps and criteria
	<p>Unify the constructions modified by the working groups to obtain a shared construction</p> <p>Propose future activities</p> <p>Conduct a survey of genuine interest of stakeholders in joining the project</p> <p>Suggest commitments and steps to be taken after this meeting</p> <p>Give thanks and make farewells</p>

Appendix 2

An Example of How A Facilitating Institution Arrives at a First Construction

Interview No. 1¹

Facilitating Institution (fi): How do you and your family use the natural resources of this watershed?

Farmer 1 (F1): (*The community*) has its own water: each family has a hose. Ours drops about 30 m, bringing water from the neighbors Claveles, but we don't have the (*economic*) resources to make a (*collecting*) tank, so we've dug a well.

fi: How do you use the water from the streams and rivulets? For washing clothes? For irrigation?

F1: When there's no water (*from the hose*), we use the stream; or when the hose is damaged. To wash the little (*clothing*) we have, (*the water*) is enough.

fi: Are there any fish (*in the stream*)?

F1: Those who have sisal kill the fish. The neighbors here below also (*kill them*), but they are from outside the microwatershed; but the neighbor above washes in the house. (*The water*) we use is clean, it comes all the way from the spring.

fi: When there are problems (*in receiving water*), do you drink from the stream?

F1: Yes, even though the neighbors above wash their clothes in it and it arrives dirty. Those who wash sisal, further down, don't affect us. People

1. In the interviews, the text in italics and parentheses is added by the authors or editor.

complain that the water sometimes doesn't arrive. The members of the Village Council, as they're all mestizos, want (*water*) from the school onward for [*the people*] further down. There's no agreement; everyone has his own opinion, like Pedro. He's the one who goes to the meetings, then comes back and tells us something else (*on translating from Spanish to the local language*) so that the community understands something else. He does it for his convenience.

Construction No. 1

Access to water and its use

Everyone has access to water thanks to the hose, but not everyone has the economic resources to build a storage tank. Some, like this family, dig a well. When water becomes scarce (*in the dry season*) or when the hose is damaged, they use streamwater.

Problems

Hoses get damaged; the water is polluted and sometimes becomes scarce.

Causes

The water comes from the upper part of the microwatershed.

- The people above wash [*clothes in the stream*] and thus dirty the water that reaches those below. Those who wash sisal kill the fish because they release polluted water.
- The Village Council is criticized for favoritism and its leaders are accused of manipulating the community.
- There is no apparent agreement among Council members, possibly because there is a relationship

between ethnicity and lack of collective action to manage the natural resources.

Interview No. 2

F2: We have piping by hose, but it sometimes breaks down; we need steel piping. The water is used for cooking and washing [*clothes*]. It comes from the spring at Santa Bárbara. The water from this stream, La Colorada, has had sisal dumped into it twice, which affects the new users who have fishponds. They found 4 to 5 sweeps of sisal fiber waste. Nobody does anything because nobody agrees on anything. Moreover, they don't get together to discuss the problem.

There's also the problem of the lack of piping. We only have hoses, which break down. Before, we had the problem of stones being thrown into the hoses, but not any more. About 8 years ago the water had broken glass in it.

Construction No. 2

Access to water and its use

As with the previous family, this family's main access to water is from a hose.

Problems

As with the previous family, the principal problem is that the hoses break down a lot. They add another: the lack of steel piping. They also have the problem with sisal growers who wash the fiber and thus kill the fish.

Causes

They say that nobody gets together to deal with the problem.

- This suggests that the lack of communication and organization is part of the overall problem.
- This situation is probably associated with that related by the first family where village leaders manipulate the community and the microwatershed's inhabitants have no consensus.
- With respect to the hosing, there had been problems with stones and glass being thrown into the hoses, but that these had been resolved.

Interview No. 3

F3: The water “fails” us, especially in summer. We used to have problems with the hoses; they’d break down and I had to fix them with the inner tubes of tires. We now have our own water, even though in summer it becomes scarce because they are felling the trees near the spring for lumber. The contractor who does the felling doesn’t leave (standing) trees, not even within 10 meters of the spring.

The (*Village*) Council said that they had some money to help us, but if we got together with another community. But we haven’t been able to agree.

Construction No. 3

Access to water and its use

He used to use hoses, but now he has his own well from which he gets clean water.

Problems

As with the first two families, this farmer finds the lack of water, especially in summer, a problem, although he does not mention pollution.

Causes

The farmer explains that the shortage of water in summer is caused by deforestation around the stream and its spring.

- Because the contractor is an outsider to the watershed, he should participate in the search and negotiation for solutions to the water problem.
- The Village Council would help this family with money even though, once again, disagreements seem to be the main obstacle preventing solution of the problems.

Interview No. 4

F4: I've got to do everything on my own. I'm badly off because I don't get enough (*water*). Although there's water at the spring, I haven't got a hose, so there's no water at the house. Juan likes to disconnect the water tank hose, so it (*the water*) can't reach us. The neighbor below is also affected. The hose breaks down and they stick in a piece to reconnect (*the water*). The water doesn't reach me because I live above the spring. It gets scarce in summer. I don't have a water tank. I don't go the (*Village*) Council meetings because they never agree on anything.

Construction No. 4

Access to water and its use

This woman lives in the upper watershed and has difficulties reaching the spring, which is much lower in the watershed. She has neither hose nor water tank near the house.

Problems

Difficult access to water and its scarcity in summer.

Causes

This and previous interviews indicate that the problems with hoses and access to sources of water result from topography.

- The inhabitants of the upper watershed may have difficult access to water found at lower levels; those who live in the lower watershed may receive water polluted by other users.
- As in the previous cases, in which they complained about stones and glass in the hose, this person also accused others of sabotaging the water system by disconnecting the hoses.
- She mentions the disagreements between Village Council members as a reason for not attending their meetings.
- This interview and other observations suggest that women living alone have more difficulty in solving problems related to access to and use of water.

Interview No. 5

A5: Before, I used polluted water because (*I “took” it from*) too far down. Now I can get clean water from our own small well. I sometimes clean the well so that the water comes down, but the resulting water pressure “disconnects” the hoses. I don’t like the (*community*) water supply because other people disconnect the hoses and there are many problems, but when I’m asked to participate in community work, I do my share.

I have had problems because someone chopped up the hoses. We have had meetings at which they complained, and someone even tried to beat me up. That's why I don't want the community water, so not to have problems. The (*people from*) the community itself are the ones who throw dirt into the tanks.

Two years ago, I was also accused of stealing but was found innocent. These (*Paez*) Indians are lazy, not like the Guambians (*another tribe*) who do work. I am also Paez, but I don't like to get involved with these.

Construction No. 5

Access to water and its use

Until he had his own well, which supplies clean water, this farmer had to take water from the stream, which, in his opinion, is polluted.

Problems

There are many problems with the hoses. Once again, neighbors are accused of disconnecting and destroying hoses.

Causes

This user indicates that there are community efforts in which he participates and that there have been meetings to call attention to the water problems.

- However, distrust appears to be general within the community, and he himself has been accused of stealing. The cause of this mistrust is likely to be the lack of communication and organization mentioned earlier.

- The user also indicates the presence of ethnic groups in the area and consequent tensions between these groups.

Interview No. 6

F6: We are reforesting with “nacedero”, pine, and “carboncillo” to recuperate the water and we were thinking of cultivating fish in the natural lake because the water is clean. We get water (*from the lake*) with a hose. The problem is to make a tank. Before we built family water systems, but now we want to make a tank for the whole community (*about 50 families*). The problems that come up are (*for example*) those who have wells, like Sonia, do not accept (*the community tank*) because they already have their own wells. But, for tomorrow’s future, the water system project is necessary; for example, to wash coffee (*beans*).

I’ve been living in Cali and I have worked in factories. I like to work with institutions, and use the new techniques that they recommend.

Construction No. 6

Access to water and its use

This user has access to water, thanks to a hose.

Problems and their causes

- He would like to build a collecting tank for the whole community, but comes up against the classic problems related to lack of interest in collective action as shown by the example of some people already having tanks and so not wishing to participate in the community tank project.

- Another problem is that of mistrust. This user is a leader. He has had contacts with institutions outside the microwatershed and has gained experience in other departments of the country. He likes to innovate. He wants to organize the community, but comes up against the opposition of landowners who already have their tanks, and the mistrust some farmers (like the one in the previous interview) have of collective action. He also has to contend with the belief held by other heads of family (such as those we interviewed first) that this user, being a leader, manipulates the community.

Interview No. 7

F7: The community needs help with the piping for the water system. The main piping had a network of 2 km but broke down. I don't have a problem with lack of water. I also have a house further up (*in another watershed*). I don't have problems with water in summer or with pollution. Other neighbors do lack economic resources and can't buy hoses. I like to work individually and not take group credit because some people, when work is involved, don't pull their weight.

They used to throw ground glass into the water, but they talked with those who did it and resolved the problem. As for the water system, they haven't been able to agree because some say that the stream from which they want to take water doesn't have enough, and others (*say*) that (*it should be taken*) from the Cabuyal (*River*), but that would bring up costs. I agree with the (*Village*) Council.

Construction No. 7

Access to water and its use

This user has no problem with access to clean water.

Problems

He believes, however, that the community needs help with organizing the main tubing.

Causes

One solution to the problem would be organization.

- However, the user is not interested in involving himself, being more of an individualist.
- He contradicts other opinions about the Village Council. The problems of organization and criticism of local entities are notable.

The Institution's Final Construction

Various elements determine people's access to water and the use they make of it.

1. The geography of settlement in the microwatershed. The farmers who live close to the spring have fewer problems than those who live above or below it. Those farmers who live above the spring can only with difficulty use the water because of gravity, whereas those who live further down from the spring run the risk of receiving polluted water from the washing of clothes or sisal fiber. Sometimes, they receive little or no water because the other farmers who live higher up have used it all or because deforestation has dried up the sources of water. We can identify various stakeholders:
 - Those who wash sisal fiber.
 - Those who receive polluted water.

- Those who use water above the spring.
 - Those who fell trees for lumber.
 - Those who are below the spring and who, because of the actions of those listed above, receive little water.
2. Many hoses and pipes have been damaged through lack of good maintenance or downright sabotage. Consequently, some farmers have resolved their water problem by digging a well or building a storage tank. But few can afford this costly solution. It is difficult to explain the damage done to hoses by people who disconnect them and throw in stones and glass shards. One can suppose that:
- Opposition to the water system may be because, even though it distributes water in a more equitable manner, it prevents many farmers who live close to the spring from having free access to an unlimited supply of water.
 - The distribution of different ethnic groups in the watershed makes the use and access to water conflictive.

Both suppositions allow us to identify the following stakeholders:

- Those who want the water system to be constructed (because they want more water for themselves);
 - Those who don't want the water system (for different reasons, e.g., they already have a storage tank).
3. An attitude of mistrust has spread throughout the microwatershed, among farmers and among ethnic groups, together with a generalized mistrust toward the community's leaders. This mutual mistrust is probably the principal reason for the failure of attempts to reach agreement and find solutions to the problem of water supply.

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