LEARNING LOCAL ENVIRONMENTAL KNOWLEDGE

A VOLUNTEER'S GUIDE TO COMMUNITY ENTRY

Information Collection and Exchange
Publication No. M0071

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PEACE CORPS
SEPTEMBER 2002

INFORMATION COLLECTION AND EXCHANGE
ICE #M0071

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ACKNOWLEDGMENTS

Learning Local Environmental Knowledge was produced in recognition of the cross-cultural challenges faced by Volunteers during their first three months of service. Volunteers and associate Peace Corps directors identified the need for self-directed learning activities to assist and accelerate the process of community entry. This guide responds to that need.

The Peace Corps profoundly appreciates the reviews of this publication and the suggestions made by hundreds of Peace Corps staff and Volunteers worldwide during a two-year design and development phase. More than 700 draft copies of this guide were requested by field staff in Africa, Central and South America, the Caribbean, the Pacific, Asia, Eastern Europe, and the Mediterranean for use and testing in Pre-Service Training. The positive feedback to the draft documents during that period provided the inspiration to publish and disseminate this guide.

INTRODUCTION

Many communities where Volunteers like you live and work are rural and agricultural. Not surprisingly, people in these communities are usually aware of the link between their local environment and their own well-being. Their environmental practices, perceptions, beliefs, knowledge, and values often reflect this link. Consequently, their understanding of new ideas about development will depend on how those concepts "fit" with what they already believe and practice. Because so many rural communities rely on local natural resources for their livelihood, Volunteers like you can use the local environment as a point of departure for learning about your community. Communities that are urban and commercial in character can be discovered in a similar way, although the environmental perceptions of rural and urban dwellers will naturally differ.

The purpose of this guide, therefore, is to provide you with a simple way to learn about the biophysical, economic, and social aspects of your host community during your first several months of service. The method will help you explore and discover how community members perceive and relate to their local natural resource base. As you learn about your host community's relationship with the local environment, you will find yourself increasingly "community-literate" about local practices and livelihood strategies. In other words, you will become a more valuable community asset for development.

USING THIS GUIDE

The learning activities suggested in this guide rely on four tools:

Communication between you and the members of your community, other Volunteers, your associate Peace Corps director (APCD), Peace Corps staff, and host country agencies and individuals. There are any number of "people resources" available to you. Each person will have unique and valuable perspectives to offer. Often, especially in your first month or so of service, you simply need to be a good listener to communicate and learn. And as your language skills improve, so will your understanding of community life.

Observation of people and work activities in the community. You are likely to find yourself relying heavily on observation to learn about your community during the first few months of service. Consistent use of your observation skills will renew your curiosity from day to day, and that will fuel your learning.

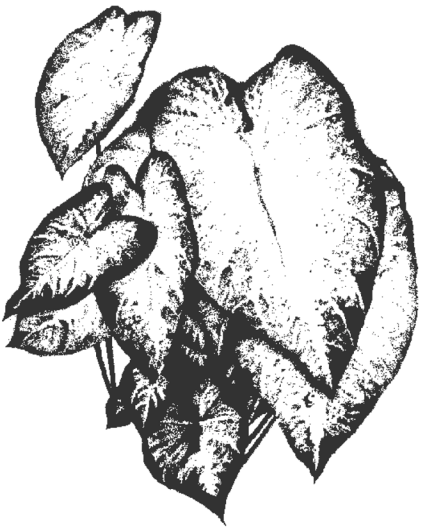
Action, a powerful learning tool. Many people find that movement and physical exercise enhance their learning. Working alongside people in their fields, shops, and homes will help you forge relationships and become a familiar community figure. This will make people more comfortable to be around you and will encourage them to share their knowledge with you.

Reflection on what you see, hear, feel, and smell, to help you understand more fully your host community, its assets, and its needs. There are as many ways to reflect on an experience as there are Volunteers. You can write about your experiences, as many Volunteers do. You might also like to express your learning in other ways. Many Volunteers take photographs, make sketches, or write songs or poetry. Some record sounds and voices on tape. Whatever method you choose, thinking in a focused way about your day-to-day experiences will multiply your learning and enhance your communication skills.

POINTS TO REMEMBER

The most important thing to remember about this guide is to **use it in ways that best suit you and your community**. Adapt the suggested activities to your circumstances and personality. At the end of each activity there are "Reflection Questions" that will help you collect your thoughts and process your learning before you move on to the next session. Be creative in documenting your thoughts as you engage in activities and respond to the questions. Again, remember to:

- Build trust with your community by being open and honest. Maintain confidentiality when appropriate.
- Be mindful of your criticisms and assumptions and discuss them with your colleagues.
- Be aware of how your perceptions change by reviewing old notes.
- Adapt the guide to your circumstances.
- Enjoy yourself!



A NOTE ON WORKING WITH YOUTH

Volunteers who work with youth often find participants who are eager to learn and to contribute their passion, energy, and creativity. Many Volunteers find that working with youth is inspirational as well as productive. Although Volunteers seem to gravitate toward working with youth, not that many have had extensive experience working with young people prior to their Peace Corps service. Below are some general principles for working with youth.

- Build on the assets of youth such as enthusiasm, energy, optimism, and hope
- Avoid focusing exclusively on "problems" but rather focus on issues, challenges, opportunities, and assets
- Create opportunities for youth to contribute to their community in constructive ways, even if modest
- Encourage young people to take responsibility for their actions and ideas
- Strengthen feelings of belonging and service to the community
- Use young people's personal experiences as a tool for teaching
- Start small and work up to larger expectations
- Build competencies and develop self-esteem
- Teach self-direction
- Involve committed parents and other adults to work with youth
- Link youth efforts with larger community development and change efforts

BIOPHYSICAL ENVIRONMENT

"Biophysical" refers to the local land, water, air, and vegetation resources. The biophysical environment is a good starting point for learning about your community because it includes tangible assets that are common to practically all community members. You can see, touch, and sometimes smell things like trees, animals, soil types, topography, and water sources. The biophysical environment also refers to the climate (wind, rain, temperature) and how it shapes the local environment. Having a sense of the biophysical environment will help you understand the conditions in which your community functions, and why some practices and perceptions exist. While the regional ecology is unquestionably important, try focusing on learning about the local natural resources in and around your community.

1 COMMUNITY WALKS

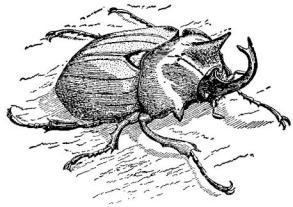
WHY DO THIS?

Community walks make you more visible and familiar to people. You may feel like you're living in a fishbowl already, but staying in and around your house may arouse people's curiosity even more. There's no escaping your "celebrity status" anyway, so make the most of it. When people see you out and about, they see that you are just a normal person and become increasingly used to you. In time, they will feel more comfortable showing you what they think is important to know.

WHAT TO DO

Ask your neighbor, your community work partners, or other initial contacts in the community to lead you on guided tours of the community. Tell them that you would like to learn about what and who are in the community. Let your questions flow based on what you see, taste, feel, and smell. Pursue a line of inquiry that takes cues and follows what is pointed out to you. Focus on how natural resources are used. Learn to ask simple questions in local or national languages such as:

- What is that…soil/plant/animal/insect/structure/body of water?
- How is it useful to people?
- Who in the community uses it?



TIPS 

- Be sensitive to the time constraints and workloads of people.
- Be aware that you will receive different information from different people. You may want to set up walks with men and women of varying ages, ethnic groups, or income levels.
- Mentally note what generates discussion even if you do not understand what is being said. Listen and pay attention to body language. Pick out words that you hear often.

ADAPTATIONS/ALTERNATIVES 

- Ask a group of people to take you on a tour, and note the various interactions between people.
- Go to a local gathering spot with a mental list of questions.
- Ask the kids who inevitably appear on your doorstep to take you on a tour and introduce you to their parents.
- If you are in an urban area, ask some community partners to take you around the neighborhood or to the market. Ask about the natural resources you see.

WHAT WORKED FOR YOU? 

Think or write about what was enjoyable, what was successful and why, what wasn't, what you found interesting, what was confusing, and what you learned.

NOTES

2 SKETCHES

WHY DO THIS?

Creating a series of map and landscape sketches sharpens your observation skills and helps you monitor your learning by documenting changes in what you observe. Maps can also help you understand how your environmental perceptions compare and contrast with those of people in your community.

WHAT TO DO

In your own way, sketch a set of maps that illustrate the natural areas and features that seem significant to you. Don't worry about being perfect. Highlight the ecology of the area and significant natural resources. Note the differences in soil types, slopes, drainage, vegetation, water bodies and sources, wind direction, etc. Sharpen your observation skills by walking around the community without a notebook, exploring one area well, and making mental notes about the resources and structures that you see. Return to your home and sketch the map from memory. Continue doing this weekly or biweekly until you feel well acquainted with the physical layout and characteristics of your community. Compare your early and later maps; look at how your learning is reflected in your maps.

KEY QUESTIONS

- What production systems have you seen (home gardens, nurseries, field crops)?
- Are there changes in vegetation composition and topography in and around your community? Describe these.

- What are the various landscapes (forested, hilly, rocky, etc.) and uses for different landscape forms?
- How many ground/surface water sources did you find? Who uses which sources, and for what purposes?
- Can you come up with theories on why the community is located and oriented geographically the way it is?

NOW WHAT?

Show your maps to a few people with whom you feel comfortable. Try to include men and women in your inquiries. Explain what you have done and ask people to show you where mistakes have been made or what should be changed.

TIPS

- Note what map features seem to be important to individuals and groups. Note differences in people's perceptions of the map on a separate piece of paper, or on the map itself.
- As you explain the concept of the map to community members, keep in mind that the "bird's eye" perspective may not be familiar to them. Think of creative ways to explain and be patient with yourself.

ADAPTATIONS/ALTERNATIVES

- Take photographs of the landscape and ask people to explain the features they see in them.
- In urban areas, map out your neighborhood or the local market. Note topography, water sources, etc. You may want to note urban gardens or other production systems you see.
- Ask some schoolchildren to help you draw maps. You may want to see if it's possible to acquire maps from government agencies so you and the group can discuss what the position of the community is in relation to the larger geographic area.

NOTES

3 COMMUNITY MENTORS

WHY DO THIS?

To cultivate relationships with individuals in the community who are respected and recognized as knowledgeable about the local environment. These relationships will help you build your own reliable set of information about local natural resources.

WHAT TO DO

Ask a neighbor, community work partner, colleague, or friend to help you identify people in the community known for the good quality work they perform using local natural resources (blacksmiths, traditional healers, beekeepers, dairy producers and marketers, fruit and vegetable growers, herders, teachers, etc). Ask to be introduced to these local experts. Some might become your mentors. Spend one day with each of four or five potential mentors in the community. Observe which resources they use and make mental notes. When the time feels right, turn your observations into action and perform some of the same activities as your mentors, depending on your interest. Try to obtain a sense of where and how these mentors spend their time. Be prepared with questions like these:

- How do you select which (trees/plants/insects/etc.) are the best to use in your work?
- How does the your work change with the seasons?
- When are the best times of the year to find/obtain/buy these resources? Where are they found?

NOW WHAT?

Think and write about your experience working with mentors.

- What in particular impresses you about your mentors?
- What did you learn from your mentors about natural resource management that you had not previously realized?
- What new information do you think your mentors could use to improve their specialized work?

TIPS

- Be sure to spend time with women and men, and with people of different ethnicity and means (as best you can determine without asking personal questions).
- At first, "shadow" (spend the day with) a neighbor or someone with whom you feel comfortable.

ADAPTATIONS/ALTERNATIVES

- Take photographs or draw the tools used by your mentors. Find out what the tools are used for, which are most useful, and whether or not they are designed and made locally.
- On the maps you've made, note the places where you and your mentors went. How are the areas you visited with your men-

tors similar to and different from each other? Which natural resources exist there?

- If you are a teacher or environmental educator, ask your students to do a community research project and to identify the experts in the community and their area of expertise. Begin to create a community knowledge sourcebook.

NOTES

4 TRADITIONAL TECHNICAL KNOWLEDGE

WHY DO THIS?

To learn community members' traditional technical knowledge base about natural resource management and with whom it resides in the community.

WHAT TO DO

– LOCAL VEGETATION

This activity can be initiated with different groups in the community that include young people, women, and others. Ask participants to interview elderly people in their homes on plant-related topics. You might consult local teachers or your community partners to develop a list of plant-related themes from which the participants can choose. The idea is for participants (and you) to learn how different community members traditionally value and use their local plants. Individual participants might create a way to represent (drawing, singing, dancing, etc.) what they have learned. Examples of possible themes for learning activities are:

- Trees and Grasses Important to My Family and Me
- Ten Important Medicinal Plants in Our Community
- A Story/Myth About a Plant

TIPS

- Work with a local professional who has an interest in environmental education.
- Encourage participants to interview women as well as men.

ADAPTATIONS/ALTERNATIVES

- Construct a plant press from local materials and do a pressed plant collection. See the "Activities for Further Learning" at the end of this guide to learn how to make a plant press.
- In urban areas, go to the market and identify the plant resources you see and ask about where they come from. Also note wood fuel sources, and try to find out where they come from. Note any trees or plants that seem to be intentionally maintained or preserved around your neighborhood. Are there any groups that are responsible for or interested in preserving or cultivating plants in the urban environment? Are there any laws governing how and when trees may be cut? What organizations or literature can you find that addresses local plant species?
- Do the same type of activity, but focus on domestic animals.

WHAT TO DO

– LOCAL INSECTS

Involve a group of children in a game to collect five to 10 insects of which they know the specific local name. Bring them together for a group discussion so they can share with you and each other their knowledge concerning the insects' habits. Think of a creative way to compile and display the results. Cross-reference the information with elders in the community. Some relevant questions for the discussion are:

- What is the local name of this insect? Does this name mean anything in particular?
- What are the names of the body parts in the local language?

- What does this insect eat?
- What eats this insect?
- What is the insect's life cycle?
- What time of year is the insect most plentiful? Why?
- Do people think this is a good or bad insect? Why?
- Do people try to control this insect? How?
- Does this insect have a relationship with any particular plant or animal?
- Are there any proverbs about this insect?

TIPS 

- Out-of-school youth may know a lot about local natural resources because they work in the surrounding environment to help support their family.
- Try not to settle for one or two answers about any insect. Try to gather as many notions about the insects as possible.

ADAPTATIONS/ALTERNATIVES 

- If people's knowledge about an insect seems limited, don't be discouraged. Someone in a neighboring community may know more. Or, focus on another insect in your discussions.
- Use the insect exercise as an environmental education activity whereby, in working with youth, you identify, research, and catalog the insects around the community. Try to display the different insects in some form (bug boxes, photographs, drawings) and ask members of the community to share what they know about the insects. Folks in the community may think you're a little odd at first, but the young people will be very proud of their work in the end.

5 TIME TO REFLECT

WHY REFLECT ON YOUR ACTIVITIES?

Below are suggestions and questions you can ask yourself to help clarify and direct your learning. Don't try to address them all at once. Look them over, keep them in mind, and act on or answer those that interest you. Add your own questions based on your interests and learning. Try writing about some of the more complex questions. You'll surprise yourself about how much you've learned. Pick a few questions and try to visually represent your learning in some way, any way, that you enjoy. Ask your community partners to help you, and think about displaying your results to other community members. Focus on what the community has to offer, rather than on what it lacks.

- Describe the vegetation type in and around your community. Is it woody, grassland, mixed, or something else? Are the trees thorny, leafy, tall? Are the grasses green or parched? Why do you think the vegetation has developed this way?
- Describe the season that the community is now experiencing. Is it rainy, dry, windy, dusty, cool, torrid, or something else? What are some things that you like and dislike about the current season? How do you foresee the current season changing in the next several months, if at all?
- Did you identify any trees or herbaceous plants that you think might be *leguminous* (Hint: these plants often have long seed pods, bean-like seeds, compound leaves)? How are these plants valued and used by the community?
- Make a list of the natural resources in the community. Which resources do you think are valued most by community members? Ask a few people to list their "Top 5" natural resources. Do the lists differ significantly among men, women, girls,

boys? If so, why do you suppose this is? Ask your neighbors and work partners what they think.

- Do men and women seem to have different knowledge and values about the natural resources in and around the community? If so, what is your explanation for this?
- What soils are in the community? Describe these by name, color, texture (sandy, silty, claylike), landscape position (upland, lowland, mid-slope), crops grown, and other identifying features cited by local people.
- Do landscape features (hills, valleys, rock outcrops, forest, grassland, riversides) seem to affect land use? In what way?
- What has impressed you most about the people in your community regarding their knowledge of natural resources?
- How does the natural environment shape the daily lives of community members? Think about the effect of water sources, hills and valleys, forest areas, and grasslands on the way people conduct their activities during a typical week.
- How does your own knowledge of ecology compare (is similar) and contrast (is different) with the environmental knowledge of the people in your community?

TIPS

- Review your learning so far. Note points that are unclear, conflicting, and especially interesting, areas where you might be mistaken, doubts, when or why you felt good, confused, etc.
- Describe ways in which your concept of the interaction between people and the local environment has been challenged. How does the local reality differ from what you grew up with? What are some local environmental practices and beliefs that really interest you? What are the things you wish your family and friends in the United States could experience?

ECONOMIC ENVIRONMENT

"Economic" refers to the interaction between environment and livelihood, and how individuals and communities work with the environment to sustain their livelihood. "Livelihood" refers to the work that people do to feed, clothe, and shelter themselves. In this section, you'll explore how livelihoods may have changed over time in response to environmental change, and how changes in the environment may have affected income levels and practices. Refer to your learning in the Biophysical section to direct the activities in this section. Focus on the use and livelihood role of natural resources and how use may have changed over time in response to various factors.

1 CONVERSATIONS WITH COMMUNITY MENTORS

WHY DO THIS?

To discover which plants, animals, and other biological resources are economically vital to community well-being, and to understand the basis for their value. You'll also look at the scarcity or abundance of these resources in relation to demand.

WHAT TO DO

Ask several individuals to rank the five to 10 most important plants and animals in the community. Encourage conversation around each choice. Learn about each particular organism by asking:

- Why is it important to the community? What is its use?
- Why is any particular plant or animal more, less, or equally important compared to another?
- Are any of the most important plants or animals difficult to obtain? Why?
- How has the availability and/or use of any particular plant or animal changed over time?
- How is the local supply of an important plant or animal maintained in relation to people's need for it?
- Note the frequency and seasonality of use (weekly, monthly, yearly) of several important plants or animals.

ADAPTATIONS/ALTERNATIVES

- In urban areas, discuss with various families and individuals the resources they use most, those that are most difficult to obtain, and those that are most expensive.

NOTES

2 MARKET SURVEY

WHY DO THIS?

To profile the economic activity of the community and the economic significance of the surrounding natural resource base.

WHAT TO DO

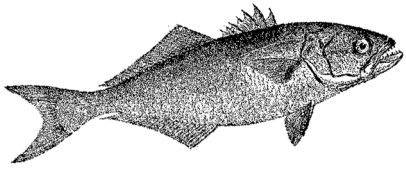
Go to a local market and use your ever-improving observation and language skills to discover what natural resources are important to various sellers and buyers, and to the overall local economy. Some potential areas of inquiry are:

- Who is in the market? Think in terms of sex, age, ethnicity, and income levels. Ask a number of people how far they have traveled to get there.
- What are people selling/buying? Note items that are manufactured, imported, and grown/made locally, non-foodstuffs, and services (e.g., tailors, health advisors).
- What natural resources products are for sale? Are they available year-round? If not, what does the merchant sell in other seasons? What is the price throughout the year?
- What imported items are, in effect, substitutes for products or services that could be made or found locally (e.g., soap, bowls, fertilizers, pesticides)?
- What are the terms of trade (e.g., how many kilograms of grain can be purchased for an equivalent value of one goat)? What items in particular can be bartered for (e.g., livestock for grain)? Is credit available? What are the interest rates and conditions of credit? Is money lending underway?

- What are the overall conditions of the market? Clean/dirty?
- Describe the various materials used to construct the market and construction methods. Does the market layout appear to be planned in any way? Why do the "onion women" sit together? Who is responsible for upkeep of the market?

TIPS

- This is a good activity to do with a Counterpart because of his or her familiarity with market dynamics and items for sale.
- Organize the information regarding natural resources for sale in the market in a way (like a table) that shows the name of the resource, its price, its period of availability by month, and other interesting, related information.



ADAPTATIONS/ALTERNATIVES

- The market is an incredibly rich source of information, but can sometimes seem overwhelming, especially on your first visits. Try to identify various merchants with whom you can sit for an extended period of time and just absorb the sights, sounds, and smells of the market. Revisit these people as often as possible. Try to focus on what is happening around you, rather than on how uncomfortable you may feel. Return home and record what you've seen and felt.

NOTES

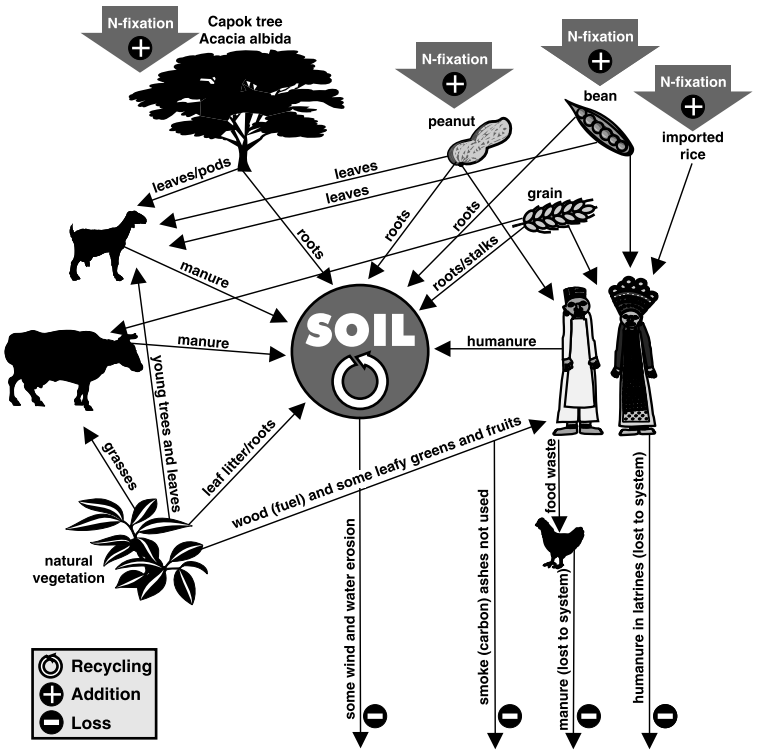
3 COMMUNITY RESOURCE FLOW

WHY DO THIS?

To determine how the nutrient resources flow throughout a community as a result of local land use practices. Nutrients are contained in every biological resource in every community, and all communities have a continuous and cyclical flow of nutrients throughout their agricultural and industrial production systems.

An interesting and fairly common example of nutrient flow has to do with the role of leguminous plants within a farming system. These are plants (clover is a typical example in the U.S. farming system) that form a symbiotic relationship with bacteria called rhizobia that live on plant roots. These bacteria are capable of turning atmospheric nitrogen into a form that is usable by plants, a process known as nitrogen fixation. You can dig up leguminous plants such as beans and peanuts when they are mature and, if the soil conditions are right, see the rhizobia nodules (knobs or bumps on the root system). If the leguminous plant is fixing nitrogen, you should be able to slit open the nodules with a knife or your finger and see a pinkish color. Your best chance of seeing this phenomenon is to look in a bean or peanut field that has received plenty of manure fertilizer.

A system that effectively utilizes nutrient cycling keeps nutrients within the system through various management techniques, such as manuring or integrating leguminous plants into the system. These techniques reduce the need for importing additional nutrients, which is costly in terms of energy units. Having an idea of nutrient gain or loss can give you an idea of the economic sustainability of various livelihood practices.



NOTES (Example)

Sustainable Practices

- legumes in system
- millet stalks laid on soil during dry season and incorporated at beginning of rainy season
- minimal erosion
- goats and cattle gather under A. albida and deposit manure

Opportunities

- chicken manure not used
- manure not incorporated into soil, results in N loss
- ashes from fire not used
- goats browse young trees
- some erosion during harmattan

QUESTIONS

(Examples of other questions that may result)

- Why manure not incorporated?
- Does humanure left on surface pose health risk? What are the cultural implications of composting humanure?
- Why are ashes not used?
- Want to learn more about natural vegetation used by household?
- How much grain/legumes exported?

WHAT TO DO 

Based on what you have discovered in previous exercises, identify the natural resources that are important to the community's livelihood systems. Design a diagram that depicts the biological areas of economic importance, e.g., agricultural fields, nurseries, forests, lowlands, riversides, grazing areas, etc. Ask various people to help you determine if you have accurately and sufficiently represented the biological resources of the livelihood system, whether natural or cultivated. Next, ask about the flow of nutrients between biological resources and depict the direction of flow. For example, cows eat grasses and leave manure in fields; crops use the nutrients from the manure; people harvest and eat or sell the grain portion of the crop; the crop residues are left in the fields or fed to livestock. Try to identify other nutrient pathways and cycles. Note where nutrients are lost to erosion, where they are exported to market, or other forms of translocation.

- Does it seem like the system has a net loss or gain of nutrients? Have you forgotten any key nutrient sources?
- Where might some nutrients be conserved for later use? For example, would composting alter the nutrient flow at all?
- Are there some common techniques that people in the community use already to recycle nutrients? Are there any innovative techniques that you have observed?
- Which practices seem "sustainable" in the sense that most nutrients and energy remain within the community system?
- How might some practices be adjusted to be more sustainable? Think about such things as fruit and vegetable production. Are people in the community consuming or selling their produce, in general? In this particular case, how could people eat more "homegrown" fruits and vegetables and receive higher prices for them at the same time?

TIPS

- Don't worry too much about scale and the relative proportions of symbols. The goal is to understand nutrient and energy flow more so than the location of its source.
- Consider the different parts of the resource. Nutrients from a crop's grain may have a different pathway than the nutrients in the stalk. The energy and nutrients in the fruit of a tree may be transported somewhere else than those of its leaves.
- This exercise should ideally include men and women of all ages. Gender roles may cause young people to be involved in one area of resource flow and elders in a different one.

ADAPTATIONS/ALTERNATIVES

- To better understand gender roles and relationships, you can attach symbols to the pathway to describe who is responsible for the movement of the resource. You can use the biological aspect of this exercise as background by highlighting gender roles and identifying who is responsible for the various parts of a community's livelihood system.
- If you work with schools, you may want to create a biology lesson plan that allows students to monitor and learn about nutrient flow in their communities. The students might highlight practices that encourage the maintenance of a nutrient source (like adding organic matter to soils) and those that facilitate nutrient loss (e.g., grain export, erosion).
- If determining nutrient flows in the entire community is overwhelming or not feasible, start by designing a diagram of one household or agricultural field and use that as your point of reference for larger, more expansive diagrams.
- Sketch out what you already know about nutrient flow in your community.

4 TIMELINE AND TRENDS

WHY DO THIS?

To discover the history of the community and how change may have affected resource availability and management.

WHAT TO DO

– TIMELINE

This exercise will help you understand the background and history of the community and give you a sense of the factors contributing to its evolution. To obtain a reliable narrative, you need to initiate and nurture discussions with elderly men and women. Approach the elders with respect and begin the discussion by explaining that you would like to learn the history of the community. Here are some basic questions you might ask:

- When was the community founded and by whom?
- Who are some important historical figures and for what are they known? When did they live in the community?
- What was the livelihood system, i.e., how people grew food and earned income, when the community was founded?
- If the livelihood system has changed since the community was founded, when did it change? (For example, "Have people in this community always cultivated maize?")
- Have there been natural disasters (floods, disease, drought) that may never leave the "community consciousness"?
- How and when did the community get its name?

Social History of One Community in West Africa

100-Year Time Frames	1000 – 1400 C.E.	1500s C.E.	1600s C.E.	1700s C.E.	1800s C.E.	1900 – 1960 C.E.	1960 – 2000 C.E.
Regional	Height of Ghana, Mali, and Songhay empires in West Africa		Islamic social and economic influence and rule grow	Periodic Islamic movements solidify power of religious leaders Serf systems put in place	Period of colonialism		Independence from colonial powers
National							
Sub-Regional	Animist farmers/blacksmiths and herders coexist in relative mutual benefit using traditional social and economic sytems of production, commerce, and governance	Islam introduced to animist herders and farmers by cattle-owning immigrants from the north			Islamic federation established with religious leaders ruling Serfdoms solidified	Invasion of colonial troops Colonialists appoint administrative ruler Serf systems weakened Colonialists force labor; primarily wild rubber harvest	Colonials administrative structures remain in place Religious leaders exercise social rule Serfdom officially outlawed
Local	Present-day community area largely forest and grassland uninhabited by people but home to wildlife such as panthers, lions, monkeys, chimpanzees	Kalduyaabe families settle in the area of present-day community	Ranyaabe families settle in the area of present-day community	Ja'iyaabe, Balbe, Ngeriyaabe, Na'iyaabe, Seeliyaabe, Kuulunaabe, Siidiibe, and Koteebe families settle in the area	Community founded by Koteebe, Kuulunaabe, Seeliyaabe, and Siidiibe families	Colonialists install leaders to govern the community Social influence of religious leaders remains strong	Various iterations of neocolonial governance established System of in-kind taxation of crops established

TIPS

- To date significant historical events, it may be necessary to put them in the context of events that were happening nationally or internationally at the time, e.g., World War I or II, national independence, the year the road was paved, etc.

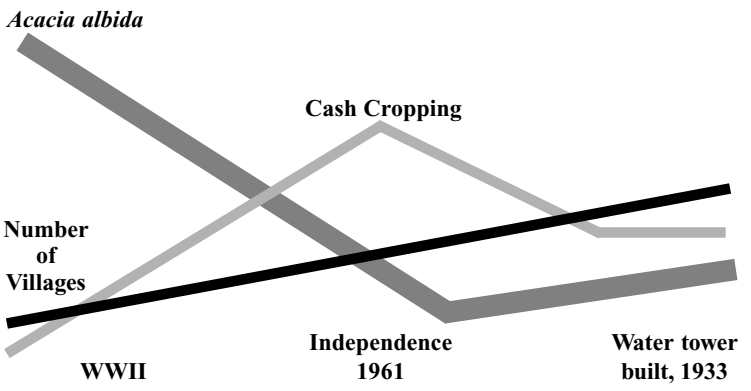
WHAT TO DO

– TRENDS

Using the information that you gained from the "Timeline" activity, ask your key informants how certain events may have prompted changes or adjustments in the community. Focus on such issues as changes in the landscape, the quality and quantity of available natural resources, the price and availability of goods and services, the structure of social relations in the community, and community leadership. A simple example of the type of question to ask is this: "During extended droughts, how did people change their soil management strategies?" Other questions are:

- How did resource availability change because of this event, and how has it continued to change since that time?

TREND EXAMPLE



193?–194?	1950s	1960s	1970s	1980s–now
Few villages Soil was more fertile Could have a lot of land and leave it fallow Not many cash crops High yields	Cash cropping increased More land farmed Increase in number of villages	Ag Research Station founded Scientists say that trees should only be used as windbreaks Brought fertilizer; at first, yields were good	Encourgaed to farm land More cash crops, less production Increase in number of villages Soil got "tired"	Soil fertility declining Farmland is scarce Encouraged to keep trees in system Still encouraged to use fertilizers

SAMPLE NOTES AND OTHER QUESTIONS:

- *Concentrated on* Acacia albida *because it was identified as an important tree previously.*
- *Later, ask about land tenure and how it changed with cash cropping. Also, ask if people see young* Acacia albida *and if it is protected. Also, I really want to find out what the spiritual significance is…if any….*
- *How has animal ownership changed? Do people own more animals? Or are there just more people?*

- How do "old" or traditional production practices differ from those in use today? In what ways are they the same?
- How are "new" practices appropriate or inappropriate to present environmental conditions?
- What do you think environmental or economic conditions will be like in the future for today's youth?
- How has land ownership changed over the last 30-50 years?
- How has population affected local land use practices?

TIPS

- Begin some of your initial questions of key informants with the phrase "In your view…" or "In your opinion…"
- The "Timeline" exercise focused on elders. The "Trends" exercise can include all age groups. Make sure to note who contributed to the success of each activity.
- Encourage discussion among participants, and refer back to the Timeline as a reference point. Do not expect consensus, especially where history is concerned. Make note of debates.

NOTES

5 TIME TO REFLECT

WHY REFLECT ON YOUR ACTIVITIES?

You can ask yourself the reflection questions below, and others you think of, to help clarify and direct your learning. Don't try to answer all the questions at once, but come back to them periodically to see what you've learned. Add your own questions based on your interests and learning. Try writing about some of the more complex questions. You'll surprise yourself about how much you've learned. Pick a few of the questions and try to visually represent your learning in some way. Ask community partners to help you, and think about displaying your results to other community members.

- What are the community's types of livelihood?
- What do people buy and sell, and what do they produce?
- How does illness affect economic production?
- Do you see any opportunities to enhance nutrient recycling?
- Which local land use practices promote nutrient recycling?
- Does the economic system rely on cash crops for export, or food crops for consumption? Has it always been that way?
- What are the main food crops and other cultivated plants?
- Did you learn about plants that are not cultivated (i.e., that just grow by themselves) but are economically important?
- What are the inputs and outputs of the community's primary production system over the course of a year?
- What are some adjustments people have made in traditional production practices as a result of changes in natural resource quantity and quality and/or population change?

- How have men's and women's roles changed over time? Whose roles have changed the most? Why?
- How do the biophysical characteristics of the environment relate to economic production?
- What impresses you the most about how men and women have responded to significant economic changes?
- What impresses you about the production system?

TIPS

- Review your learning so far. Note points that are unclear, conflicting, and especially interesting, where you might be mistaken, doubts, where and why you felt good, etc.
- Describe ways in which your concept of the interaction between people and the environment has been challenged. How does it differ from what you grew up with? How is it similar? What are some local environmental practices and beliefs that really interest you, and what are the things you wish your family and friends in the United States could experience with you?
- Focus on what the community has to offer, not what it lacks.

NOTES

SOCIAL ENVIRONMENT

You'll probably find that this section requires greater language ability than you needed for discovering the biophysical and economic facets of your community. Additionally, you may encounter issues that are more sensitive than those related simply to biophysical and economic realms. For the activities suggested in the following pages, try to focus on environmental management techniques that seem to be culture-specific, on social relationships, and on cultural perceptions that influence land use decisions. Try to involve a range of community members.

1 COMMUNITY CHANGE

WHY DO THIS?

To learn more about the historical changes in your community.

WHAT TO DO

You and your work partners might try to arrange semiformal interviews of two or three elders on how life in the community has changed since they were young, and how it has remained the same. Try to focus on family livelihood strategies as they are linked to the local natural resource base. Ask those interviewed to reflect on how their work differs from their parents' and grandparents' work. For example, here are several broad topics:

- Landscape Changes in the Last 30 Years
- How Farming Has Changed in Our Community
- How Changes in the Landscape Have Influenced Farming
- Farming Practices of Our Ancestors

ADAPTATIONS/ALTERNATIVES

- Involve youth or other groups in documenting the changes that have occurred. Try to understand the perceptions regarding why change has occurred and whether it is perceived as being a good or bad thing.
- Ask people to speculate on the future.

NOTES

2 TRANSECT

WHY DO THIS?

To discover land use zones and land management techniques that are linked directly with social factors.

WHAT TO DO

Use the knowledge you have gained from the biophysical and economic activities to imagine a line through the community landscape. Think of the transect as a cross-sectional view of the landscape. After you walk the line yourself, ask two or three knowledgeable community members to walk it with you a second time. At various points along the landscape line, identify land use practices, vegetation, crops, animals, water sources, etc. Describe changes in the landscape with respect to:

- Community rules, written or understood, that govern land use in the community and reasons for these rules
- Cultural management techniques like crop rotations, fallow periods, soils that are easy or difficult to cultivate, erosion control, and water management
- Recent management practice adjustments (if any) and the reason for the adjustment

LANDSCAPE TRANSECT IN DARA PELLI DISTRICT

The *toposequence* or *catena* of this comunity landscape (top of slope to bottom) is marked by different forms of land use, and reflects the different soils, vegetation, economic and social values associated with each zone. Each landscape zone has a name in the local language, and sometimes two names, that refers to its form, its traits, its use, or its relative location. Farmers use these designations in planning their cultivation strategies.

	Bowal	Fello	Hansangere	Dantaari	Caangol	Dunkire	Hollande
LAND USE	No farming; some grazing.	Millet fields in short rotation; forest/fallow.	Most widely used grain fields, usually in a 2-3 cropping cycle followed by at least 7 years of fallow; cleared and burned for cropping; some grazing during fallows.	Split between growing fonio/grazing livestock; much is "bushland"; can cultivate with machinery.	Drinking, bathing; laundry water source for people and livestock.	Extensive fruit and vegetable plots in dry season; can flood in rainy season.	Pasture par excellence some woodlot planting; some efforts to grow soybeans mechanically.
SOILS	Very shallow; rocks/laterite, low fertility.	Rocky, fairly easy to work; low fertility.	Gravelly, shallow, low fertility yet can support millet, sorghum, peanuts, upland rice, fonio; erosion surprisingly limited.	Sandy, more clay versus hansangere; less rocky; very hard when dry.	———	Very fertile, alluvial loam easy to work, few stones/gravel.	Very fertile, heavy clay is difficult to cultivate; slick/muddy when wet.
VEGETATION	Sparse; scrub trees/bushes; short grasses.	Mixed small & large trees; short grasses.	Wide range of trees, bushes, and grasses; forest areas bordering uphill streams not cultivated; some "sacred" areas not cut.	Fewer large trees, more grass than hansangere; shrubby, smaller trees.	———	Cleared, planted to fruit except next to streams; quackgrass.	Primarily short and tall grasses; medium spiny trees; savanna-like.
ECONOMIC VALUE	Very limited; some grazing.	Limited to millet crops.	Most grains grown here consumed (little marketed except peanuts); mulch source (tree leaves) for suntuure maize crop; firewood and livestock forage.	Productive for maize with mechanical/fertilizer, good for livestock forage (cows, sheep, goats).	Hand irrigation for vegetable and fruit gardens; water for livestock; few fish.	Valuable fruit and vegetable growing area; some "wells" for people & livestock.	Valuable pasture land, open range used by semi-nomadic herders.
SOCIAL VALUE	Ex-nobility families live near this zone.	Ex-nobility families live in this zone.	Pivotal areas for defining land tenure; access, use, and tenure claims by former serfs tenuous and nebulous.	Closer to settlements of former serfs; closer to main transport routes.	Gathering point for women; cleansing point for everyone.	Tenure claimed by ex-nobles, yet close to ex-serf settlements.	Tenure rather nebulous; community-governed.
NOTES	Rainfall tends to run off.	Monkey habitat.	Also the land where houses and woemn's maize fields (pl: *cuntuuji*) established.	Fairly unexploited, ex-serf tenure less tenuous.	Many streams dry up for part of year.	Significant potential for economic returns.	Can extend for vast distances; beautiful.

TIPS

- It may be appropriate to do more than one transect in large communities and to do them with different age, sex, and ethnic groups to ensure a full representation of perceptions and opinions.
- Be aware that a full day (or several half-days) may be needed to do this exercise.
- Note species composition and whether there are patterns regarding plant species composition and other variables, such as proximity to village, soil type, slope, etc.

NOTES

3 TRADITIONAL TECHNICAL KNOWLEDGE

WHY DO THIS?

To learn about the range of local technical knowledge, especially traditional knowledge, and with whom it resides.

WHAT TO DO

With your work partners, find and interview community experts, people thought of as innovators or experimenters, and people considered to be especially proficient in some aspect of the livelihoods that support the community. Discussion topics might include:

- Seed saving and selection
- Soil management
- Livestock keeping
- Hunting and gathering
- Healing and illness prevention

Try to learn from other community members why these people are considered experts, and then interview the experts themselves. Put questions in the context of the profession. For example, interviewers might ask an expert farmer:

- How would you characterize a good farmer? Why are some farmers more successful than others?
- What characteristics should good cropland have, and how do you maintain those qualities?
- What and how have you learned from others about farming?

- What do you value the most about the life of farming?
- Why do you farm rather than doing another profession?
- Does religion have a role in farming? If so, what is it?

TIPS 

- Make sure that community experts include women and men.
- Think about the traditional modes of communication and how information is conveyed. Are there people in the community known for their extraordinary speaking ability, particularly in the local language? Try to involve these community members in conveying what you have learned using the oral traditions of the local culture.
- Visually represent your findings about traditional technical knowledge through painting, drawing, sculpture, or other mediums. Ask community members to comment on your work.
- It is important to understand that many traditional communities have practices and perceptions that have a spiritual basis. These beliefs can be very significant with regard to how a community, or an individual within the community, views the process and products of development.

NOTES 

4 VISION STATEMENTS

WHY DO THIS?

To learn what people value in their communities and their ideas for future development.

WHAT TO DO

Collect a series of vision statements from people with whom you have established a relationship. These are statements from people in the community about future possibilities and direction for community development. Use what you have learned from previous activities to create relevant questions. Some ideas for questions are:

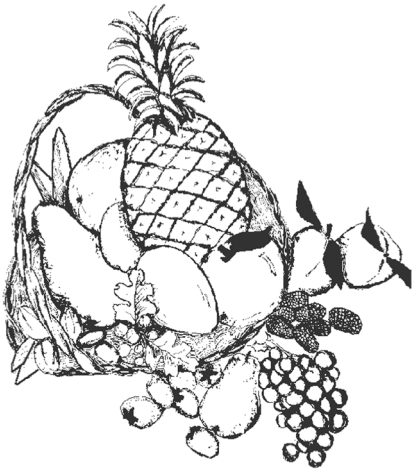
- Describe what your community would look like, and how people would work with each other, if you had the power to make two or three significant changes.
- What are the strengths of your community? How can these strengths be used to make the community an even better place than it is today in which to live and raise a family?
- How would you want your responsibilities to the community and to your family to change, if they could change?
- What would you do if you had more time in a normal day?

TIPS

- Ask questions that allow respondents to answer in terms of what already exists within the community, at least in part.
- Create questions that elicit real possibilities in the community, rather than fantasies.

- Ask questions that reflect what you have learned about your community but, at the same time, challenge your learning.

NOTES



5 TIME TO REFLECT

WHY REFLECT ON YOUR ACTIVITIES?

These are questions you can ask yourself to help clarify and direct your learning. Ask community partners to help you answer some of the questions.

GENDER

- What natural resources do men manage and what do women manage? Who controls which natural resources? Can you make a list of these? Who has access to which resources?
- Who are the experts in your community? Why are they considered experts? In what areas are women and men experts when it comes to natural resource management?

RELIGION

- Do people refer to theological and/or supernatural forces in their observations about the environment and natural resource management? In what ways do they make such references? How might you use or address these perceptions when thinking about possible development work?

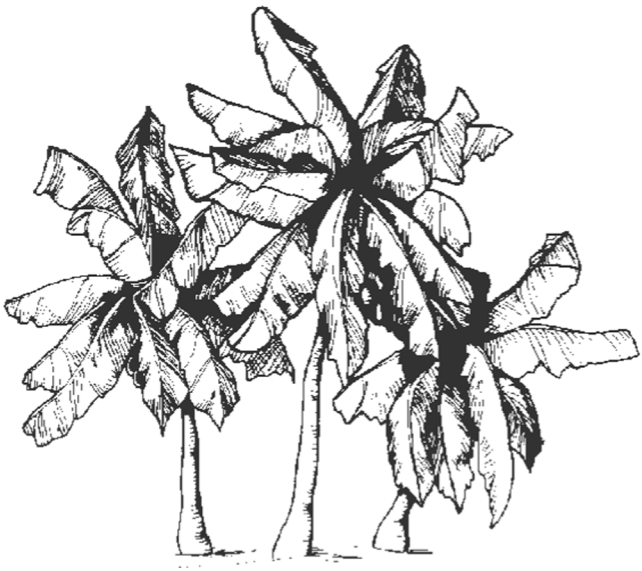
SOCIETY

- What social themes have emerged that seem to affect the way people engage in their livelihoods? For example, do people articulate a need for community solidarity in natural resource management? Do they refer to their parents' and grandparents' decisions about land use management?

- Do you see discrepancies between what the culture says about treatment of the environment and what is practiced? How can you explain this? Is it hypocrisy or something else?

TECHNOLOGY

- Have you identified farmers who appear to use *regenerative* agricultural techniques, i.e. farming methods that improve the land resource while it is used to grow food? What practices in particular might be considered *regenerative*? Why do you think these farmers use these practices while others do not? Describe these farmers and their techniques.
- Can you identify any agricultural practices that have the net effect of maintaining or promoting biodiversity or, on the contrary, any that endanger biodiversity?



EDUCATION

- Did you find any natural resource conservation practices that could be useful in an environmental education curriculum?
- Have you met community members who you think may become effective environmental educators?

DEVELOPMENT

- When thinking about development strategies in your community, what biophysical, economic, and social factors (specific to your community) really need to be addressed?
- What options do you see for development that fit within your project framework? How are these options appropriate to the way your community works, and to your community's natural resource assets? In what ways might those options not be a good "fit" with your community's way of operating?
- In terms of your work as a Volunteer, given what you have learned so far, what is your next step? How can you build on what you have learned about the local environment?

TIPS 

- Review your learning once again. Note points that are unclear, conflicting, and especially interesting, where you might be mistaken, doubts, where and why you felt good, etc.
- Describe ways in which your initial concepts of people's interactions with their environment have been challenged.

NOTES

APPENDIX A – ACTIVITIES FOR FURTHER LEARNING

COMMUNITY ENVIRONMENTAL SOURCEBOOK

This project can be initiated with various community members and groups. The idea of an environmental sourcebook is to document community knowledge in visual and creative ways and make it accessible to community members to ponder and discuss. Suggestions for potential groups to involve include students of all ages, youth organizations, women's groups, farmers' associations, religious organizations, and other community-based organizations. A Community Environmental Sourcebook does not necessarily need to be in a classic book format, although that is an option. In conjunction with the community group, think of creative ways to display the information and to represent people in the community.

LOCAL PLANT PRESS

The basic materials needed for constructing a plant press are:

- Newspaper
- Several pieces of corrugated cardboard (30 centimeters by 45 centimeters is a standard size)
- Straps or cords
- Plywood or lattice made of wooden laths (cut to 30 centimeters by 45 centimeters)

Leaf samples should be put in the press within a few hours of their collection. Place the sample between several sheets of newspaper. Sandwich the sample between two cardboard separators. Place another sample on the flip side of one of the separators and repeat the process until you have prepared all the

samples you have gathered for the day. Samples with thicker stems or small fruits can be accommodated by inserting pieces of foam rubber between the newspaper and cardboard separator. Bind the press together with the straps. Check samples daily and change any damp newspaper. Remove them when they are dry. In particularly humid conditions, dry the samples where dry heat is available, e.g., well above or beside (not too close!) a cooking fire. Stiff white paper works best for mounting. Plants can be mounted using sticky tape or rubber cement. Affix a label that includes information on the name(s) of the plant, date of collection, traits used by local people to identify the plant, and the plant's habitat. Include other interesting characteristics and uses.

HANDWRITTEN READING BOOKS

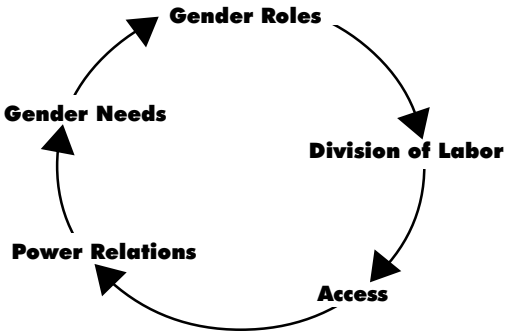
Environmental topics that reflect community interests can be a great addition to literacy projects for primary school students or other similar educational uses. If there is a secondary school in the area, students can write and illustrate the books and pass them on to others who are learning to read. This is a great way to involve the whole community in the education process.

SEED FAIRS

Seed fairs can help create an awareness of the rich biological diversity that exists among community farming systems. Farmers can learn from one another about the various characteristics of seed varieties and explore how the different varieties maintain and increase the resilience of local farming systems through genetic diversity. For more information, contact your associate Peace Corps director or write to the Centre for Research and Information on Low-External Input and Sustainable Agriculture (www.oneworld.org/ileia), PO Box 64, 3830 AB Leusden, The Netherlands, or e-mail ileia@ileia.nl.

APPENDIX B – GENDER ANALYSIS

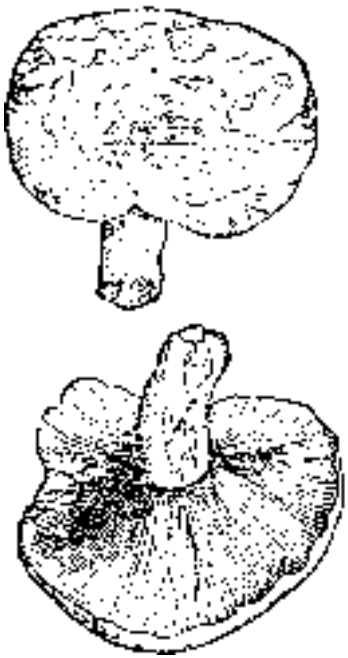
Adapted from Parker, A. R., I. Lozano, and L. Messner, *Gender Relations Analysis: A Guide for Trainers*. Westport, Conn.: Save the Children, 1995. (ICE# WD138)



Gender roles are what society views as appropriate behavior based on sex, age, or class. What are the responsibilities of men, women, boys, girls, household, and community? Gender roles determine the *division of labor*. Put more simply, who does what? Gender roles and division of labor determine who has how much *access* to which resources, facilities, opportunities, organizations, information, benefits, etc. In turn, gender roles, division of labor, and access cumulatively determine *power relations*. In other words, who in the household or community decides if, when, and how activities should or will happen?

Gender needs are derived from gender roles, division of labor, access, and power relations. Project activities that are gender-sensitive contribute to an improved capacity by individuals to fulfill their gender roles. Offering complete and timely market information to small-scale women onion growers may make it easier for the women to sell their onions at greater profit. A

similar scenario would be true if men who trade livestock had better market information. Some gender-sensitive activities may alter gender roles. Training women to operate a seed bank may create competition in the setting of wholesale grain prices, and introduce women into this male-dominated field of commerce.



APPENDIX C – ADDITIONAL READING

You can order the following publications from ICE. Include the publication number and quantity desired in your order.

1. ***Building Communities from the Inside Out: A Path Toward Finding and Mobilizing a Community's Assets.*** John P. Kretzmann and John L. McKnight. (ACTA Publications) 1993. 376 pp. [ICE Publication No. CD051]

   Guide to asset-based community development, summarizing lessons learned by studying successful community-building initiatives in hundreds of U.S. neighborhoods. Outlines what local communities can do to start their own asset-based development, including how to rediscover their local assets; how to combine and mobilize these strengths; and how "outsiders" in government can effectively contribute to the process of asset-based development.

2. ***Culture Matters: The Peace Corps Cross-Cultural Workbook.*** Craig Storti and Laurette Bennhold-Samaan. (Peace Corps ICE) 1997. 256 pp. [ICE Publication No. T0087]

   Practical, interactive workbook for PCVs in all programs. Guides the reader through the cross-cultural experience and through the major concepts in the intercultural field, and presents exercises, stories, quotations, and descriptive text designed to aid the Volunteer in successfully adapting to the new culture.

3. ***Gender and Development Training; Girls' Education.*** (Peace Corps ICE) 1998. Various pages. [ICE Publication No. M0054]

   A product of the Gender and Development Training Initiative, which seeks to institutionalize the consideration of gender issues throughout the Peace Corps. Contains eight booklets on gender and development, which provide background and development of projects, training designs for various participants, session plans and handouts, and insights from the field. Four additional booklets address girls' education.

4. ***PACA: Participatory Analysis for Community Action.*** (Peace Corps ICE) 1996. 350 pp. [ICE Publication No. M0053]

   Participatory Analysis for Community Action (PACA) is an approach used to facilitate communities' exploration of their own realities in order to take action for changes they desire. Based on earlier participatory analysis methods, such as Rapid Rural Appraisal and Participatory Rural Appraisal, PACA turns the appraisal activity into a process where the development agent and the community develop a partnership that leads to community control of its own projects. As a defining criterion, PACA distinguishes the role of gender in development by applying the participatory exercises with separate groups of women and men, girls and boys, which allows the community members to compare and analyze together the roles that shape their reality. In similar ways, PACA can be used to understand age, ethnicity, or any other source of societal differentiation that has implications for development. The tools can be used in schools, organizations, institutions, and any other group, rural or urban, where different voices need to be heard.

5. ***Power, Process and Participation: Tools for Change.*** Rachel Slocum and Lori Wichart, editors. (IT Publications, Ltd.) 1995. 251 pp. [ICE Publication No. WD123]. **Distribution to Peace Corps in-country resource centers only.**

Intended to provide participatory tools that will give voice to those excluded from decision-making processes and control of critical resources. Includes ways of encouraging the less powerful to translate their experiences and interests into action. Discusses power relationships within a community and between local institutions and outsiders. Pays close attention to gender issues.

6. ***Recording and Using Indigenous Knowledge: A Manual.*** (IIRR Publications) 1996. 211 pp. [ICE Publication No. CD054]

   Provides the information and tools to integrate indigenous knowledge into development work. Describes more than 30 methods for recording and assessing indigenous knowledge and 11 mini-case studies that show how projects can build on indigenous knowledge. Focuses on many aspects of indigenous knowledge, including agriculture, livestock rearing, food preparation, and natural resource management.

7. ***Tools for the Field: Methodologies Handbook for Gender Analysis in Agriculture.*** Hilary Sims Feldstein and Janice Jiggins, editors. (Kumarian Press) 1994. 270 pp. [ICE Publication No. WD114]

   A collection of field examples of gender-related research focusing on agricultural projects. Provides concrete examples of important ways gender considerations can be taken into account in project design, implementation, and evaluation.