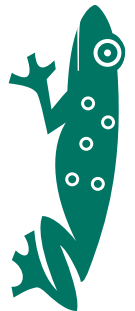
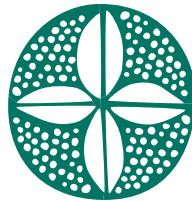
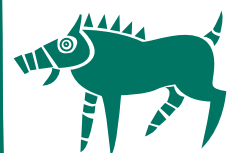


# ENVIRONMENTAL EDUCATION IN THE COMMUNITY



Peace Corps  
Information Collection and Exchange  
Publication No. M0075



# **Information Collection and Exchange**

The Peace Corps Information Collection and Exchange (ICE), a unit of the Office of Overseas Programming and Training Support (OPATS), makes available the strategies and technologies developed by Peace Corps Volunteers, their co-workers, and their counterparts to development organizations and workers who might find them useful. ICE works with Peace Corps technical and training specialists to identify and develop information of all kinds to support Volunteers and overseas staff. ICE also collects and disseminates training guides, curricula, lesson plans, project reports, manuals, and other Peace Corps-generated materials developed in the field. Some materials are reprinted “as is”; others provide a source of field-based information for the production of manuals or for research in particular program areas. Materials that you submit to ICE become part of the Peace Corps’ larger contribution to development.

This publication was produced by Peace Corps OPATS. It is distributed through the ICE unit. For further information about ICE materials (periodicals, books, videos, etc.) and information services, or for additional copies of this manual, please contact ICE and refer to the ICE catalog number that appears on the publication.

## **Peace Corps**

Office of Overseas Programming and Training Support

Information Collection and Exchange

1111 20th Street, NW, Sixth Floor

Washington, DC 20526

Tel: 202.692.2640

Fax: 202.692.2641

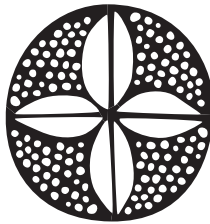
Abridged Dewey Decimal Classification (DDC) Number: 333.72

---

### **Share your experience!**

Add your experience to the ICE Resource Center. Send your materials to us so we can share them with other development workers. Your technical insights serve as the basis for the generation of ICE materials, reprints, and training materials. They also ensure that ICE is providing the most up-to-date innovative problem-solving techniques and information available to you and your fellow development workers.

# **ENVIRONMENT EDUCATION IN THE COMMUNITY**



**PEACE CORPS**  
**2005**

**Information Collection and Exchange  
Publication No. M0075**





# CONTENTS

**ACKNOWLEDGMENTS** ..... iv

**CHAPTER ONE** ..... 1  
What is Environmental Education?

**CHAPTER TWO** ..... 8  
Assessing and Discovering the Environmental Situation

**CHAPTER THREE** ..... 47  
Identifying the Target Group

**CHAPTER FOUR** ..... 54  
Identifying the Message

**CHAPTER FIVE** ..... 63  
Creating an Educational Strategy

**CHAPTER SIX** ..... 68  
Implementation

**CHAPTER SEVEN** ..... 73  
Monitoring and Evaluation

**CHAPTER EIGHT** ..... 82  
Environmental Education Camps

**CHAPTER NINE** ..... 112  
Environmental Education Centers

**CHAPTER TEN** ..... 142  
Environmental Education Community Projects

**APPENDIX** ..... 295  
Training Modules





# ACKNOWLEDGMENTS

This new manual updates two older Peace Corps' manuals: *Teaching Conservation in Developing Nations* [ICE No. M0007] and *Conservation Education: A Planning Guide* [ICE No. M0023]. In addition to the time- and field-tested wisdom of the older manuals, this new manual incorporates current research and practice in the field of environmental education. *Environmental Education in the Community* includes many new ideas, activities, and tips drawn from the experiences of Peace Corps Volunteers and staff around the world.

The Peace Corps recognizes and appreciates the work from the field, the contractors, and the environment specialists, as well as additional headquarters staff who made this new publication possible. Gratitude is also expressed to the various writers and publishers who gave permission to reprint and adapt their materials for the purpose of this publication.



## CHAPTER ONE

# WHAT IS ENVIRONMENTAL EDUCATION?



For years, Peace Corps Volunteers have assisted communities to create and engage in a broad range of environmental education activities. A nature walk and observation of natural processes in a nearby tropical rainforest, for example, increases farmers' awareness about the causes of erosion. A water and sanitation training increases knowledge of sources of pollution and disease. A community forestry working group helps to develop attitudes that will improve forestry practices. A role playing simulation assists a town council to develop communication skills. Planning a recycling center helps local people develop the skills to open a small business. Although the content and setting of each of these activities is different, the educational goal is the same: to help communities appreciate, protect, and sustain their natural surroundings.

In 1977, the United Nations Educational, Scientific and Cultural Organization (UNESCO) hosted an Intergovernmental Conference on Environmental Education in Tbilisi, Georgia. At that conference, the sixty-six member states, along with intergovernmental agencies and nongovernmental organizations, adopted the Tbilisi Declaration.<sup>1</sup> The Tbilisi Declaration defines the framework, principles and guidelines for environmental education. As stated in the Tbilisi Declaration:

“The goals of environmental education are:

1. To foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas.
2. To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment.
3. To create new patterns of behavior of individuals, groups, and society as a whole towards the environment.”

The categories of environmental education objectives are:

**Awareness**—to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

**Knowledge**—to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

---

<sup>1</sup> For complete text, see [www.gdrc.org/uem/ee](http://www.gdrc.org/uem/ee)



**Attitudes**—to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation to actively participate in environmental improvement and protection.

To achieve these goals, Peace Corps Volunteers strive to create environmental programs that promote a world population that is aware of, and concerned about, the total environment and has the knowledge, skills, attitudes, and commitment to work toward the improvement and maintenance of a healthy environment. Effective programs have the following characteristics.

**The participants:**

- see how modifying environmental practices can benefit the community.
- are actively involved in all aspects of the program (e.g., program planning, implementation, monitoring, etc.).
- help to determine the curriculum.
- discover ecological principles, patterns, and processes through experimentation and action that have practical applications to daily activities.
- can work toward making a positive change and see the results of their actions.

**The activities:**

- link new information to the experience and knowledge of the participants.
- are active, engaging, and participatory.
- take place in the field, outdoors, and on-site.
- lead to environmentally responsible behavior.
- present knowledge that is relevant to the economic needs of participants.
- are relevant to participants and facilitate decision-making.
- present new knowledge that can be easily incorporated into existing daily routines.
- allow teams to learn cooperatively.



**The environmental educators:**

- know the audience.
- understand themselves to be learners as well as teachers, and approach the community with humility, respect, and enthusiasm.





## HOW TO USE THIS BOOK

To create a successful environmental education program, you and your community counterparts will need to identify, discuss, and carry out six tasks, each of which will result in a component of the education program. There is value in reading chapters Two through Seven *before* you begin planning your program since these chapters will outline the overall process of planning and implementing environmental education projects in your community, and can help guide you and your counterparts as you proceed. Become familiar with the entire process before beginning your work, since creating effective environmental education programs is not a linear process. Rather, you will go back and forth between the stages of program development, and should keep in mind what you will need to do or know at the various stages. For example, you and your counterparts should think about evaluation indicators from the very beginning stages of program development, even though they are not discussed until Chapter Seven. This will help you to implement ongoing monitoring activities.

Make sure to involve community members and community-based organizations in leadership roles from the very beginning of the program development process, including the Assessment and Discovery phase. This helps to facilitate community ownership of the project, and increases the likelihood that the project is relevant to local circumstances.

	<b>Task</b>	<b>Key Questions</b>
<b>Chapter 2</b>	Assess and discover the environmental situation—issues, solutions, community assets, and constraints that can help or hinder an environmental program. The assessment process should be <i>participatory</i> , that is, it should involve individuals who are based in the community, and who will continue the program after the Volunteer’s departure. It is crucial to conduct a thorough assessment, as it will lay the groundwork for creating a strategy to achieve the solution.	What important environmental issues in your community might you successfully address? What behavior changes will improve environmental quality? If these solutions are such good ideas, why aren’t people already implementing them?
<b>Chapter 3</b>	Identify the target groups.	Who in the community can help alleviate the constraints to environmental improvement?
<b>Chapter 4</b>	Identify the message.	What information will enable your target groups to implement environmental solutions?
<b>Chapter 5</b>	Select the educational strategy.	How will you deliver the key information?
<b>Chapter 6</b>	Implement.	When, where and to whom will you deliver your message?
<b>Chapter 7</b>	Evaluate.	How will you determine the success of your program and make necessary changes?

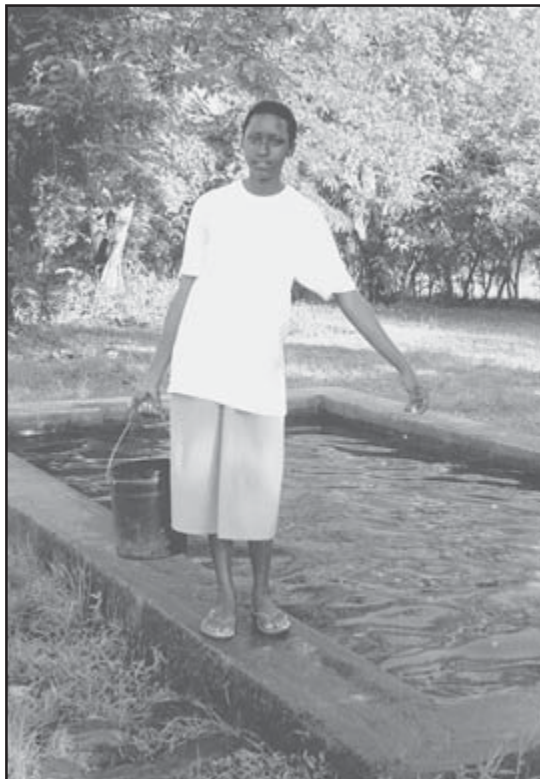




## Question and Reflect

Questions are inserted from time to time throughout the text to remind you to continually process and reflect upon what you have read. Typically, these questions are non-judgmental and appreciative in nature. They are meant to help you to learn about, rather than assess or judge, your community and its strengths. What you discover can serve as the foundation for environmental education activities.

*Environmental Education in the Community* is part of three-volume set of Peace Corps-developed environmental education manuals that also includes *Environmental Education in the Schools* [ICE No. M0044], and *Adapting Environmental Education Materials* [ICE No. M0059]. Additionally, other Peace Corps' training and project design materials can enhance the use of this manual. Some of the most relevant publications are listed at the end of this chapter, and can be obtained through your post's resource library, or online where noted.



## EXAMPLES OF PEACE CORPS ENVIRONMENTAL EDUCATION PROJECTS

- In Romania, an annual “Procession of the Species” parade is held that celebrates the natural world with art, music and dance. The parade increases biodiversity awareness, encourages networking among organizations, and introduces potential future project partners.
- In Guatemala and Ecuador, environmental projects are offering support for income generation projects in bee-keeping and recycling paper.
- In Mongolia, a traveling snow leopard interpretation display was developed to increase knowledge of snow leopard biology in preserve buffer-zone areas.
- Health programs in Mauritania and Cameroon focus on access to and maintenance of potable water and sanitary facilities.
- In China, the Sino-American Environmental Education Program encourages students to find, research and develop their own environmental projects.
- In Niger, children take an extended river field trip to learn about a national park ecosystem and interact with a forest agent.
- In Panama, educators work in schools to help communities understand protected areas, and participate in natural resource management.
- In Togo, Volunteers work with farmers to introduce sustainable farming practices.
- In Nicaragua, in the aftermath of Hurricane Mitch, teams work to rehabilitate land, reforest and stabilize stream banks.



## RESOURCES

### Print

***Adapting Environmental Education Materials.*** Washington, DC: Peace Corps. [ICE No. M0059]

[http://www.peacecorps.gov/library/pdf/M0059\\_adaptenviron.pdf](http://www.peacecorps.gov/library/pdf/M0059_adaptenviron.pdf)

This publication walks Volunteers through the steps of evaluating the appropriateness of existing materials to their school setting, determining how useful materials can be adapted, and making those adaptations. It includes training sessions for skill development and worldwide examples of adaptations to simpler and fewer materials, to local realities, to traditional classroom subjects, and to nonformal youth programs. This is an excellent resource for anyone who teaches, and is a companion to *Environmental Education in the Schools: Creating a Program that Works!* [ICE No. M0044].

***Environmental Education in the Schools: Creating a Program That Works!*** Washington, DC: Peace Corps. [ICE NO. M0044]

<http://inside.peacecorps.gov/content/documents/documents/m0044e00.cfm>

This practical guide offers useful information for introducing environmental issues into the academic curriculum and contains a wealth of activities, enlivened with illustrations, case studies, and Volunteer examples. Each of the nine chapters deals with a different aspect of developing and implementing an environmental education program, starting with assessing local environmental problems and school conditions to determining goals and objectives, ways of gaining program support and evaluating results.

***Windows on the Wild: Biodiversity Basics—An Educator’s Guide to Exploring the Web of Life.*** Tustin, CA: Acorn Publishing, 1999. [ICE No. FC258]

This guide is a complete course book for teaching young people about the environment, the variety of life on earth and the importance of protecting the web of life. It includes unit plans, resources, games, charts and other activities for teachers and their students in grades 6-8.

***Windows on the Wild: Biodiversity Basics—Student Book.*** Tustin, CA: Acorn Publishing, 1999. [ICE No. FC259]

The student’s guide is a companion piece to FC 258 *Windows on the Wild: Biodiversity Basics—An Educator’s Guide to Exploring the Web of Life.*

***Pachamama: Our Earth—Our Future. Young People of the World.*** United Nations Environment Programmes, 1999. [ICE No. FC260]

This resource is a colorfully illustrated global introduction to the state of the environment in the 21st century. It consists of contributions from youth around the world and covers topics such as the earth’s atmosphere, marine and coastal areas, biodiversity and urbanization and uses poetry, stories, pictures and case studies to highlight concerns of young people about the future of the environment. It also contains activity sheets and a game board.

***Environmental Activities for People Who Use English as a Foreign Language.*** Washington, DC: Peace Corps, 1994. [ICE No. R0092]

<http://inside.peacecorps.gov/content/documents/documents/r0092e00.cfm>

This publication provides a variety of practical activities to foster discussion about environmental problems while at the same time improving students’ English language skills. It contains separate units for such topics as land use planning, global warming, recycling, air pollution, environmental





health and environmental ethics, with specific activities, drawings, stories and bibliographies for each unit.

***Learning Local Environmental Knowledge Training Manual.*** Washington, DC: Peace Corps. [ICE No. T0126]

[http://www.peacecorps.gov/library/pdf/T0126\\_llekmanual.pdf](http://www.peacecorps.gov/library/pdf/T0126_llekmanual.pdf)

This manual serves as a complement to *Learning Local Environmental Knowledge: A Volunteer's Guide to Community Entry*. The book suggests ways to introduce the process of community entry to prospective Volunteers while they are still in pre-service training, and strengthen competencies during subsequent in-service training. Approaches for integrating these sessions in all aspects of Volunteer training (language, technical, cross-cultural and health) correspond with tools and exercises found in the Volunteer's guide.

***Learning Local Environmental Knowledge: A Volunteer's Guide to Community Entry.*** Washington, DC: Peace Corps. [ICE No. M0071]

[http://www.peacecorps.gov/library/pdf/M0071\\_llekguide.pdf](http://www.peacecorps.gov/library/pdf/M0071_llekguide.pdf)

To be used with the *Learning Local Environmental Knowledge Training Manual*, this handbook provides Volunteers in any sector with a structured way to learn about the biophysical, economic and social aspects of a host community during pre-service training and the initial months of service. This is an excellent tool for Volunteers to use in their role as a learner.

***New Project Design and Management Workshop Training Manual.*** Washington, DC: Peace Corps. [ICE No. T0107]

[http://www.peacecorps.gov/library/pdf/T0107\\_projectdesign.pdf](http://www.peacecorps.gov/library/pdf/T0107_projectdesign.pdf)

This training manual is based on a one-and-a-half- to four-day workshop reinforces the importance of community participation in designing and implementing local projects. Intended for use during in-service training, sessions show Volunteers and their counterparts how to involve and work with the community through each step of the project design process, from analysis of community assets and needs to planning, implementation, monitoring and evaluation. The initial sessions can be covered in pre-service training. Supplement to *Participatory Analysis for Community Action (PACA)*.



***PACA Idea Book: Participatory Analysis for Community Action.*** Washington, DC: Peace Corps. [ICE No. M0053]

This Idea Book updates an older Peace Corps resource which introduced the Peace Corps' approach to participatory analysis. PACA tools were initially used to institutionalize the inclusion of women in all Peace Corps development programming, monitoring, and implementation. Currently, PACA tools promote the inclusion of all representative voices in a community in Peace Corps project planning and implementation. The Idea Book offers practical, field-based examples of how PACA tools have been applied in a Peace Corps' context and Volunteers can use it as a self-paced study guide in the field.

***Camp Glow: Girls Leading Our World.*** Washington, DC: Peace Corps. [ICE No. M0056]

[http://www.peacecorps.gov/library/pdf/M0056\\_campglow.pdf](http://www.peacecorps.gov/library/pdf/M0056_campglow.pdf)

Camp GLOW (Girls Leading Our World) is a week-long leadership camp. The purpose of the camp is to encourage young women to become active citizens by building their self-esteem and confidence, increasing their self-awareness and developing their skills in goal setting, assertiveness and career and life planning. Begun in Romania in 1995 by Peace Corps Volunteers and Romanian teachers, the camp has been replicated by Peace Corps Volunteers and their local colleagues in more than 21 countries worldwide. This handbook provides details about organizing the camps, schedules and lessons learned. The content of the camp sessions is found in *Choices: A Teen Woman's Journal for Self-Awareness and Planning* by Mindy Bingham, et al, Advocacy Press, Santa Barbara, CA. 1993.

## Web

Global Development Research Center, "Tbilisi Declaration," and "Agenda 21, Chapter 36."

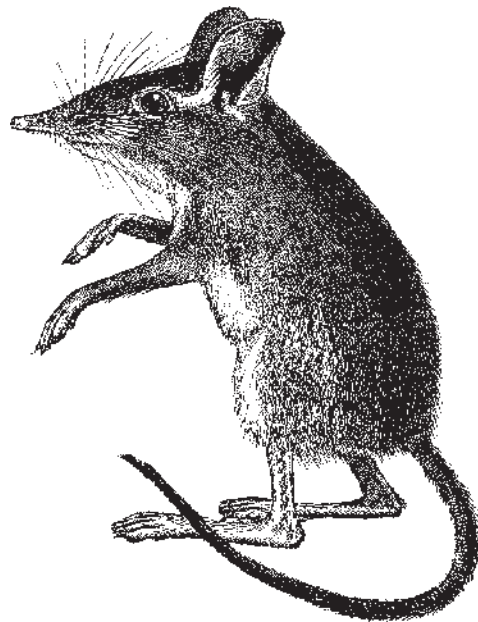
[www.gdrc.org/uem/ee/](http://www.gdrc.org/uem/ee/)

Peace Corps Panama Friends webpage.

[www.pcpfpanama.org](http://www.pcpfpanama.org)

RPCVs in Environment and Development.

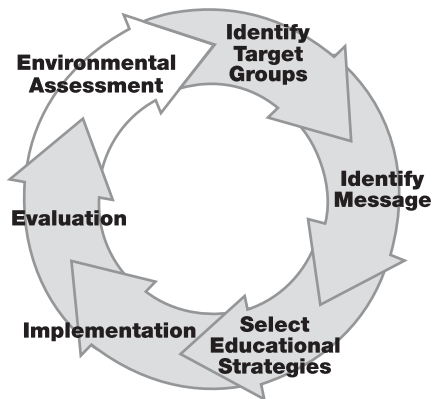
[www.cboss.com/rpcv-eandd/index.html](http://www.cboss.com/rpcv-eandd/index.html)





# CHAPTER TWO

## ASSESSING AND DISCOVERING THE ENVIRONMENTAL SITUATION

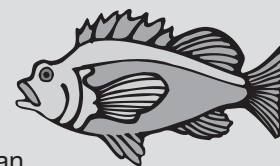


The first step to create a powerful environmental education program is to find out which environmental issues are important to the people in your community by conducting an **environmental assessment**.

The purpose of assessment and discovery is to identify and characterize the community’s environmental assets, problems, concerns, and advantages. By understanding and describing the environmental situation in a community, you and the community will be able to prioritize and better organize activities. A thorough assessment will lay the groundwork for creating an environmental program that responds to community desires and is specific to community realities.

It is crucial to conduct a thorough assessment because you and the community will refer back to the assessment as you create each piece of the program development strategy. The information and learning that you gain during the assessment process must help in deciding, for example, what **environmental message** (see Chapter Four) would resonate in the community, or who will be most affected by any environmental program and how to use indicators during the **evaluation** (see Chapter Seven). Additionally, it is important to identify solutions that reflect both the existing assets (the building blocks of the program) and aspirations (the expectations and desires) of the community.

### MACHHA BAZAR



Imagine you have been posted to the small town of Machha Bazar (Fish Town). Machha Bazar is located on the bend of a river with particularly rich fish resources. Until recent times, Machha Bazar was an isolated town and fish were the primary source of food and money. Recently, a road has been built, which has brought more people and goods. Across from the town is a national park that was created to protect the dwindling wildlife in the area, especially tigers.

Your job is to work with a small NGO called River Conservation to help the community of Machha Bazar develop and implement an environmental education program. During training you learned about community development, sustainable development, and building capacity. You hope to work in the community to help community members create and maintain sustainable projects.



The environmental assessment is organized into 15 different topical areas (see sidebar), with an assessment tool for each topic (see examples at the end of the chapter). Remember that your inquiry should not be limited to the biological aspects of each of these topical areas, but should also include social, economic and cultural components. The assessment should seek to learn, for example, how different segments of the community interact with each of these biological areas, how these areas are important to livelihood, etc. A thorough assessment will discover not only environmental problems and constraints, but also community assets. These assets can be used to build an effective environmental program that recognizes and uses the skills and knowledge of the community.

To further organize the assessment, three geographic units are used.

- towns
- farms
- natural areas

Most Volunteers work in communities where these three areas exist. However, they won't always be distinct and/or separated. For example, people may deliberately maintain or cultivate certain plants and/or trees in "natural areas" for various reasons (e.g., spiritual, economic, etc.), while in many communities, farming or gardening may occur within the "town" limits. Try to become familiar with the various land-use practices and a number of livelihood strategies employed in your community. Some, but perhaps not all, of the 15 environmental elements can be found in your community's town, farms, or natural areas. In some communities they are in all three places.

The environmental education program in your community cannot address all of these issues at once—and certainly not within your period of Peace Corps' service—you and your counterparts will need to make strategic choices about which elements to address. The assessment should focus on the areas that have been identified as community priorities, but your and your counterparts' interests and observations should also inform how you carry out the assessment. Although the environmental elements are organized as individual topics, you, your counterparts, and other involved community members can use a mix-and-match process to identify and select 15-20 research questions that reflect community priorities and that guide the information-collection phase of the environmental assessment.

## 15 TOPICAL AREAS FOR ENVIRONMENTAL ASSESSMENT

1. Biodiversity
2. Coastal Areas
3. Climatic Conditions and Natural Disasters
4. Cultural Values
5. Farming and Grazing
6. Forests, Grasslands, and Natural Areas
7. Gender Roles
8. Human Settlements
9. Institutional and Community Environmental Management Structures
10. Livelihood Security
11. Parks and Protected Areas
12. Soils and Land
13. Waste Management
14. Water Resources and Watersheds
15. Wildlife and Livestock



You can gather environmental information about your community from three general sources:

1. Your own first-hand field observations;
2. Specialists and local residents; and
3. Literature and the Internet.

Remember, you are learning about the local environment and how the community interacts with it. You and your counterparts must approach your tasks as “learners,” as well as “assessors.” This is an important distinction. As a **learner**, you recognize the community to be a classroom and community members to be teachers. As an **assessor**, the community and community members become the subjects of your investigation.

## **PRE-ASSESSMENT ACTIVITY: BECOME FAMILIAR WITH THE PHYSICAL LAYOUT OF THE COMMUNITY**

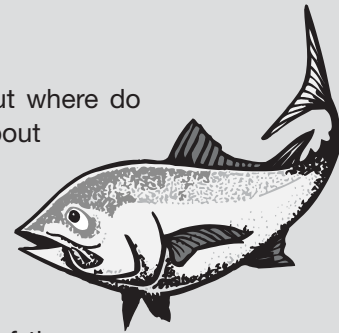
### **MACHHA BAZAR**

So you have arrived in Machha Bazar all fired up and ready to go, but where do you begin? You are acutely aware of how much you need to learn about Machha Bazar.

You have settled in with your host family and met your counterpart. Perhaps your first task is to get oriented to the town. You are able to converse fairly well with your host brother, so you ask him to take you on a tour of the town. You take a notebook and make a sketch of the town as you go.

You learn that the town is on the inside of a large bend in the river. Along the river there are different kinds of boats, and a dock for large boats. Your host brother tells you that most people in the village fish; some just for their families, while others sell fish in the capital city. The main street runs along the riverbank and has a variety of small stores owned by local people. One block back from the main street is the school. Across the street from the school are the government offices and the post office. The town has been cleared from the surrounding forest, but a few trees have been left for shade. On the main street are benches placed under trees. Children are swimming in the river in a calm area near the boat landing.

The far side of the river is solid forest. Your host brother tells you it is a national park, and there are regulations about what you can do. The park was created to protect tigers, but tiger skins and bones bring lots of money, so sometimes people come from upstream to camp and hunt for tigers. Sometimes the tigers can be seen when they come down to the river for a drink, but, usually, they stay away from town. In fact, since the new road was built, your host brother has hardly ever seen them on this side of the river. Your brother believes this to be a good thing, since they used to eat people's goats and get into their fish stores.



(continued)





You ask about the road. Your brother tells you it was built five years ago and has made life much easier. Everyone used to have to go to town by boat, but now they can go by bus or truck. Some people have cars. Lots of new things have come into the stores and it is easier to get things like clothes, radios or soda pop. It has also brought more people. Truck drivers, for example, are coming and going at all hours, and the trucks are noisy. Your brother tells you that when the road came in, the town had to move the dump because it was in the way. The old dump was filled in and a new dump was made closer to the river and behind the school. As a result of the digging and cutting down of the forest during road construction, there was a lot of dust and the water got cloudy, but it has settled down now. Your brother tells you that the best thing about the road is that people can stay home with their families and make a living whereas they used to have to go to the capital to find work or sell fish. Townspeople were poorer then. Things are better now, although fish have been scarce for the last couple of years, which your brother believes has been caused by an increase in fishing activities.

After spending a couple of hours with your host brother, you go back to your rooms and reflect on what happened, making a few notes so you won't forget. You now have a map of the town with many of the buildings and points of interest on it. You know a little about the history of the road and how it changed the town. You were actively listening, which encouraged your host brother to talk. As a person new to the area, you asked a lot of questions that you thought must sound stupid to your host brother, although your host brother was more than willing to explain. In fact, perhaps there is an advantage to being new. Now is the time to ask all those basic questions, because no one expects you to know, and they are happy to talk about their town and their lives.

It is likely that activities such as community walks will generate more questions than they answer. Write those questions down as soon as you finish the activity. Those questions can guide your learning as you acclimate to the community. If you are learning a local language, translate your questions and ask them of as many people as you can. Make sure to learn from a broad range of people, including those you wouldn't normally encounter. Asking yourself questions following an activity can reinforce your learning, help you to look at your community from a variety of viewpoints, and can trigger other important questions. The list of questions below provides some ideas on the types of questions that our fictional Volunteer might ask of herself following the walk with her host brother. Remember to focus your learning on what a community has to offer (appreciative approach), rather than what it lacks (problem-based approach).



## Reflection Questions

- In addition to fishing, how else did you see people using or interacting with the environment? In addition to livelihood uses, note any recreational and other uses.
- What did you learn about how people use the various natural resources? Do women use resources differently than men? Do women use different resources? How might resource knowledge differ





among men and women? Among young and old? How might resources be valued differently? Make a point of discussing your various speculations with men and women.

- What season is it? Project how resource use may change over the course of a year. Project how the landscape might change. How might this affect resource use?
- What kinds of trees were used as shade trees? Do they have other uses? What other trees seemed to be deliberately maintained? Mark these on your map and make a point of going back to inquire about those trees.
- How was the site for the new dump picked? Who picked it? Who was affected by the relocation of the dump? Were they affected positively or negatively?
- How was land use affected by landscape features (e.g., hills, rocky soils, flat areas)?
- Who do you want to interview and learn from?



## **PRE-ASSESSMENT ACTIVITY: ENVIRONMENTAL ASSESSMENT REVIEW**

Prior to conducting the formal assessment, and as you become familiar with your host community, you and your counterparts should review your thinking about the reasons for conducting an environmental assessment. This will help later, as you, your counterpart(s), and community members design the assessment, define roles and responsibilities, and identify goals, objectives, and tasks. Ensure consensus by asking and discussing:

1. Why are you doing an environmental assessment in your community?
2. Who should participate in the environmental assessment?
3. When should you do the environmental assessment?
4. What should be the products of the environmental assessment?
5. What resources might be available to support the environmental assessment?
6. How can the products of your environmental assessment be used in environmental education?



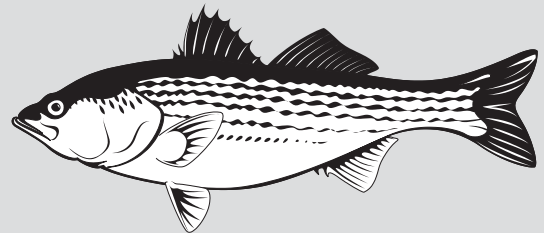
## PRE-ASSESSMENT ACTIVITY: LISTENING TO AND COMMUNICATING WITH COMMUNITY MEMBERS

### MACHHA BAZAR

Soon after you move in to Machha Bazar, your counterpart informs you that there will be a town meeting. You feel a bit nervous about going because your language isn't very good, and you don't know very many people yet, but you decide to go so you can see what can be learned from the meeting. Your counterpart and brother agree to act as your interpreters. Taking notes can often be considered a suspicious activity, so you decide to make mental notes of important people and ideas and go home afterwards to jot them down on paper.

The meeting is being held in the community building. Your counterpart introduces you to an overwhelming number of people. You make a note to ask her to go over those names and positions at a later time. There is one person who seems to be chairing the meeting. He seems very knowledgeable and authoritative. As the meeting progresses, your brother tells you that the main issues of concern are outsiders coming in and interfering with traditional subsistence use of natural resources, a perceived threat from the poachers, and decreasing fish numbers.

You notice that there are definite leaders and people who speak up more often than others. Most of these leaders are men, but not all of them. Your counterpart indicates that one of these men is the headmaster of the school. Another is the leader of the organization your counterpart works for. Another woman is the leader of a mother's group.



When discussing the decreasing fish numbers, some people say they think it is because there are more outsiders taking the fish, and some say the water is polluted. Your brother tells you that no one can agree why the fish are decreasing, but that everyone fears that there will not be enough fish to feed their families this year. They are concerned that they will have to buy more food, but with less money. Generally, there is animosity expressed towards some of the newer residents of the community.

Most of the discussion about the poachers has to do with safety. The poachers apparently camp in a secluded area upstream of the village. They are former soldiers who have no work. They hunt tigers for the huge profit of selling hide and bones to another country. When they are hunting, they take boats across to the park in areas where it is difficult for the rangers to see them. They try to hunt on days when the ranger is far away. Sometimes they hunt at night. After a successful hunt, they often come into town to celebrate, which can involve guns and drunkenness. People have been hurt and frightened. Someone wonders if they will kill off all the tigers, or make the tigers angry so they will come into town and eat livestock.

After you get home, you jot down your observations and reflect on a number of different topics.



## Reflection Questions

- Who seems to command respect? Who are the community leaders?
- What do various community members think can be done about the fishing issue and the poaching issue?
- What is the role of local government in environmental issues and land use?
- What concerns did men express vs. the concerns of women? Did you see any consistency among concerns of men, concerns of women, or concerns of youth?
- What, if any, solutions were offered? How were they received?
- Who are the stakeholders? What interests were represented at the meeting? What interests were not represented at the meeting?
- Which people would you like to talk to more?
- Who might seem a good candidate for an advisory group?
- What livelihoods were represented at the meeting? How are various livelihoods dependent upon the environment?
- How would people like to see the community develop?

## USING THE ENVIRONMENTAL ASSESSMENT

Think of the environmental assessment as an extensive dialogue on the environment with the community. Other Peace Corps' publications, such as *Learning Local Environmental Knowledge* [ICE No. M0071], *Promoting Powerful People* [ICE No. T0104] and *The PACA Idea Book* [ICE No. M0086] can help you with some specific methods and activities to engage in this dialogue. These same publications can help you create a forum to analyze the information and interpret results after the group has collected it.

It is crucial to involve community members in the assessment, and you and your counterpart should find interested members of the community who would like to participate in development of the environmental program. A community environmental advisory or working group can fulfill this role, as well as keep the inquiry process on track by helping to make sense of the information you gather and applying it in meaningful ways.

On the next page, you will see a guide sheet for exploring one of the environmental elements noted above (*biodiversity*). Determining the specific content of the assessment can begin with the questions on the guide sheet. The sheet is structured with one table for each environmental element. Each table has three columns: *Town, Farms* and *Natural Areas*, which you can use to organize your inquiry.

These questions are intended to guide your research. The questions are not exhaustive, and you'll likely be able to add more questions based on the specific circumstances of your experience. Share questions with your counterparts, community members and advisory group, and ask for input on additional questions that the assessment should address.

The other 14 guide sheets are located at the end of the chapter.



Guide Sheet

# BIODIVERSITY

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

Biodiversity education should enable people to:

- Understand what biodiversity means.
- Consider biodiversity as part of their cultural, spiritual and economic heritage.
- Recognize the relationship between biodiversity and the maintenance and quality of life.
- Know what factors influence biodiversity in constructive and destructive ways.
- Take action to preserve and enhance biodiversity.

## GENERAL ISSUES

1. What agencies are working on biodiversity conservation?
  
  
  
  
  
  
  
  
  
  
2. How are these agencies addressing biodiversity conservation?
  
  
  
  
  
  
  
  
  
  
3. What have been the results of these agencies' conservation efforts?
  
  
  
  
  
  
  
  
  
  
4. What are local people's perceptions of *biodiversity*? How do they express this concept?
  
  
  
  
  
  
  
  
  
  
5. Are there any traditions or beliefs that contribute to conserving and managing biodiversity?

(continued)





**Guide Sheet**

**BIODIVERSITY**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. What is the major plant type in the area (trees, grasses, shrubs, mixed)?			
2. What is the greenest area (stream banks, sacred groves, meadows, shrub land, pockets of trees, orchards)?			
3. What wild mammals, reptiles, amphibians, fishes, birds can be found in the area?			
4. Are there “heritage” seed varieties (land races) available in the local market? Do farmers save heritage seed varieties for planting as crops? Do people collect heritage seed varieties from natural areas? What are these varieties?			
5. What are the threats to biodiversity in the area (e.g., road or housing construction, commercial development, chemical or material debris pollution of waterways, smoke-filled air)?			
6. Which plants found in area (including the marketplace) are used for local medicinal purposes? What wildlife (include fetish use)?			
7. Is hunting an important economic activity? (Check the marketplace; ask farmers.)			
8. When people cut trees for firewood and forage, which species are they using? (Check the marketplace.) How do they prune them? Do the trees die once cut?			
9. Is there enough forage and pasture for livestock? (Check market prices; ask farmers.)			
10. What flowering plants are available in towns for bees to utilize, including fruit trees?			



## WHAT TO DO WITH THE INFORMATION

The next task is to analyze the data and succinctly describe the environmental situation in the community. Interpreting the data is best done in conjunction with the community environmental working group. With that information, you, your counterpart, and the working group can prioritize problems and decide where you should focus your resources and efforts. Keep in mind that the final result that you are looking for is curriculum content for the EE program. The next step that you and your counterparts will take to reach this will be detailed in the following chapters.

### Moving from environmental information to environmental education

Within the information that you and your counterparts gathered, what are the *environmental facts* that relate directly to each priority environmental issue? For example, if a community's priority environmental issue is *water quality and quantity*, you may have discovered these key facts:

- Certain sources of water in the community are less murky than others. Some are closer to most residences than others. Some dry up during certain parts of the year.
- The water table is 20 or so meters below the surface, except in areas close to the stream.
- Some folks collect rainwater from their roofs but most don't. One family has plumbing.
- Livestock use the same sources of water used by people for drinking.

Given such environmental facts (and this is just a sample), what can you and your counterparts determine to be important environmental issues in the host community? In other words, what questions related to these facts will provoke people in the community to ask their own set of questions about the situation, what are the implications, and what can be done about it? Here are some examples of possible questions:

- Why does some water appear to be “clean” while other water looks “dirty?”
- Is water that looks clean safe to drink?
- What causes some water to be muddy? Does it even matter if water is muddy or clear?
- Why does the depth of the water table vary within the community?
- Are there things we can do to keep water sources from drying up? What are they?
- Are there ways to bring water closer to homes, if we can't build houses close to water?
- What difference does it make that livestock and people use the same water for drinking?
- Is water that falls from the sky the same as water that runs off a roof into a barrel?

Once you and your counterpart(s) have determined the issues that you would like to address, you are ready to move on to the next component of your environmental education program: **Identify the Target Groups.**





# ENVIRONMENTAL ASSESSMENTS



Biodiversity ..... 15

Coastal Areas ..... 19

Climactic Conditions and Natural Disasters ..... 21

Cultural Values ..... 23

Farming and Grazing ..... 24

Forests, Grasslands, and Natural Areas ..... 29

Gender Roles ..... 30

Human Settlements ..... 31

Institutional and Community Environmental Management Structures ..... 33

Livelihood Security ..... 35

Parks and Protected Areas ..... 37

Soils and Land ..... 39

Waste Management ..... 41

Water Resources and Watersheds ..... 43

Wildlife and Livestock ..... 45





Guide Sheet

# COASTAL AREAS

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

One of the key lessons that people everywhere should remember about their local environment is: *water runs downhill*. It takes the path of least resistance. Where are these pathways in your community? Collectively, these pathways all lead to some type of coastal area. In some communities, the coastal area is a seashore. In other communities, it is a lake. A coastal area could even be a pond or a riverbank.

Environmental education about coastal areas should enable people to:

- Understand coastal areas;
- Consider coastal areas as part of their cultural, spiritual, and economic heritage;
- Recognize relationships between the well-being of coastal areas and the quality of life;
- Know what factors influence the well-being of coastal areas; and
- Take action to preserve and enhance coastal areas.

## GENERAL ISSUES

1. What agencies are working on coastal area conservation?
  
2. How are these agencies addressing coastal area conservation?
  
3. What have been the results of these agencies' conservation efforts?
  
4. What are local people's perceptions of *coastal areas*? How do they express this concept?
  
5. Are there traditions or beliefs that contribute to conserving and managing coastal areas?

(continued)

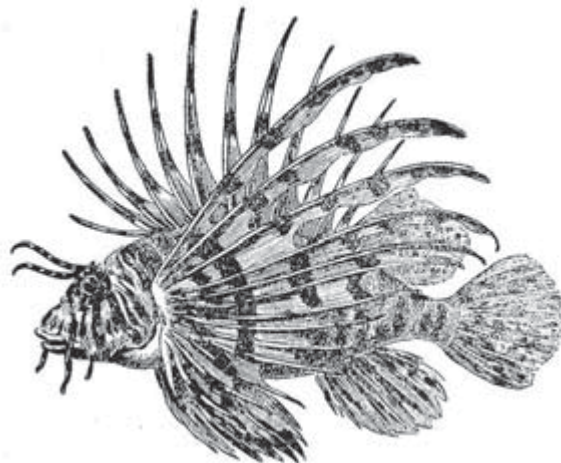




**Guide Sheet**

**COASTAL AREAS**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. What appear to be the major people-related factors affecting coastal resources in the area? To what extent are these factors related to the actions of local people, outsiders, and visitors?			
2. What are the principal species of land and aquatic life residing near or in the water resources of the coastal zone in the area? How are these species harvested and utilized?			
3. Which coastal species are available to buy in the local market? Are any of these species sold in markets in the capital, or exported?			
4. If people are clearing marshes and mangroves near the area, why are they doing this (e.g., to construct landfills, homes, marinas, shrimp farms, build enterprises, other)?			
5. If people living in towns dump their waste directly into the coastal resource, what is this doing to the water and lands bordering these coastal resources?			
6. If you have noticed garbage on the coastlines, what is its source?			





Guide Sheet

# CLIMATIC CONDITIONS AND NATURAL DISASTERS

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

One of the key lessons that people should understand about their local environment is that the intensity and impact of natural disasters—floods, landslides, tornadoes—can be mitigated by using appropriate natural resource-management practices (e.g., tree planting, soil-conservation techniques, grassed waterways).

Environmental education about climatic conditions and natural disasters should enable people to:

- Understand what is meant by these terms, *climatic conditions* and *natural disasters*;
- Consider climatic conditions as part of their cultural, spiritual, and economic heritage;
- Recognize relationships between climatic conditions and the quality of life;
- Know what factors influence natural disasters in constructive and destructive ways; and
- Take action to mitigate the negative impacts of climatic conditions and natural disasters.

## GENERAL ISSUES

1. What agencies and institutions are working on natural disaster mitigation?
  
2. How are these agencies and institutions addressing natural disaster mitigation?
  
3. What have been the results of these organizations' mitigation efforts?
  
4. What are local people's perceptions of *natural disasters*? How do they express this concept?
  
5. Are there traditions or beliefs that contribute to natural disaster mitigation? What are they?
  
6. Is there a map available that shows the natural hazards?

(continued)





**Guide Sheet**

**CLIMATIC CONDITIONS AND NATURAL DISASTERS**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. Is there a history of any disaster related to the climate—or other natural (or non-natural) source—having occurred in the area?			
2. What are the most common natural disaster risks (e.g., floods, tornadoes, landslides) or non-natural hazards (e.g., toxic waste disposal site, power-generation plant) in the area?			
3. How have people in the area modified their behavior or infrastructure to mitigate the impact of natural or non-natural hazards?			
4. What demographic trends, changes in infrastructure, or adoption of new natural resource management practices could affect the severity or frequency of natural or non-natural disasters in the area?			
5. What opportunities are readily available for mitigating natural disasters or non-natural hazards in the area?			





Guide Sheet

CULTURAL VALUES

From Educating for Life: Guidelines for Biodiversity Education, edited by Ewan McLeish. Copyright © 1997, Council for Environmental Education. Adapted with permission.

Environmental education about cultural values should enable people to:

- Articulate their cultural values with regard to environmental stewardship;
Consider culture as part of their environmental heritage;
Recognize relationships between cultural values and the quality of life;
Know what environmental factors influence cultural values; and
Take action to enhance the positive impacts of cultural values on the local environment.

GENERAL ISSUES

- 1. What agencies and institutions are working on cultural values and the environment?
2. How are these agencies and institutions addressing cultural values and the environment?
3. What have been the results of these organizations' efforts regarding cultural values?
4. What are local people's perceptions of cultural values? How do they express this concept?
5. Which traditions or beliefs define the role of cultural values in environmental management?

CULTURAL VALUES

Table with 4 columns: Optional Assessment Questions, Town Areas, Farming Areas, Natural Areas. It contains three rows of assessment questions related to cultural values and their impact on environmental management.







**Guide Sheet**

**FARMING AND GRAZING**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. Which grain, vegetable, fruit, and forage crops are being grown? What percentage of the landscape area is being used for farming?			
2. Which livestock are raised? What percentage of the landscape area is used for grazing?			
3. In what ways has farming appeared to have changed the environment (positive/negative)?			
4. In what ways has grazing appeared to have changed the environment (positive/negative)?			
5. Are farming and grazing practiced so that people have enough food to eat, or are they selling some of their products for cash?			
6. In what ways have farming and grazing practices changed over the years? (Ask.)			
7. What is the agricultural production calendar?			
8. Is it possible to determine who owns the land that is farmed and grazed, and who rents? If so, what are the landlord/tenant relationships?			
9. What are the major constraints to farming and grazing, if any? What makes it easy to farm and raise livestock (e.g., rivers, flat land, etc.)?			
10. How do livestock owners and cultivators of trees and crops interact with each other?			
11. What is the carrying capacity of the local landscape for farming and grazing activities? (Ask local or regional technical authorities.)			
12. How many plants per hectare do farmers plant on their cropland? Do their crops grow and develop in a uniform way? If not, why not?			

(continued)





Guide Sheet

**FARMING AND GRAZING**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
13. What percentage of cropland is covered by vegetation or plant residue in the off-season?			
14. How many head of livestock per acre do the livestock owners manage on the available land? What is the physical condition of the livestock? How do the livestock find water?			
15. How do farmers classify and name the different soil types in the community?	May not be applicable		
16. What do farmers say are the best lands for raising crops? What makes these so good?			
17. What do livestock owners say are the best lands for grazing? What makes these so good?			
18. What productivity issues (crops and livestock) are faced by farmers and livestock owners? What do they do to improve productivity?			
19. What pest problems (insects, diseases, weeds) are faced by farmers and livestock owners? What do they do to control these pests?			
20. Do farmers and herders leave land in fallow (i.e., no cultivation or grazing on it for a certain period)? How long are these lands in fallow?			
21. Do farmers and livestock owners know certain “indicator plants” that signify land as being ready for production or ready for fallow?			
22. Do any farmers use mulch on any crops to control weeds and conserve soil moisture? What do they use to mulch?			
23. Do any farmers use nitrogen-fixing plants in fields or pasture to improve soil fertility or improve livestock nutrition?			

(continued)





**Guide Sheet**

**FARMING AND GRAZING**

<b>Optional Assessment Questions</b>	<b>Town Areas</b>	<b>Farming Areas</b>	<b>Natural Areas</b>
24. How are crops and livestock integrated? (e.g., Do farmers use animal manure to fertilize their croplands? Do herders graze their livestock on the residues left in fields after harvest?)			
25. Which varieties of grain crops are grown? Which breeds of livestock do farmers raise?			





Guide Sheet

# FORESTS, GRASSLANDS, AND NATURAL AREAS

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

Environmental education about forests, grasslands, and natural areas should enable people to:

- Understand what is meant by *environmentally healthy* forests, grasslands, and natural areas;
- Consider how forests, grasslands, and natural areas are part of their cultural heritage;
- Recognize relationships between forests, grasslands, natural areas and people's quality of life;
- Know socioeconomic factors that influence the health of forests, grasslands, and natural areas; and
- Take action to enhance the well-being of forests, grasslands, and natural areas.

## GENERAL ISSUES

1. What agencies and institutions are working on forest, grassland, natural areas conservation?
  
  
  
  
  
  
  
  
  
  
2. How do these agencies and institutions address environment-friendly development?
  
  
  
  
  
  
  
  
  
  
3. What have been the results of these organizations' conservation and/or development efforts?
  
  
  
  
  
  
  
  
  
  
4. Which traditions or beliefs address the well-being of forests, grasslands, and natural areas?

(continued)



**Guide Sheet**

**FORESTS, GRASSLANDS, AND NATURAL AREAS**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. What percentage of the land area is covered by forest, grassland, and natural areas?			
2. Are there traditional and official names for the local forests, grasslands, and natural areas?			
3. How might you characterize the health of the habitat that is, in broader terms, either forest, grassland, and natural areas?			
4. Which commercial or home-use products are taken from forests, grassland, natural areas?			
5. Who owns these forests, grasslands, and natural areas? Who uses them, and for what?			
6. Which people-related factors appear to affect, positively or negatively, the health of forests, grasslands, and natural areas in the community?			
7. Which maps of the forests, grasslands, and natural areas are available for reference?			





Guide Sheet

# GENDER ROLES

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
 Copyright © 1997, Council for Environmental Education. Adapted with permission.

Environmental education about gender roles should enable people to:

- Understand what is meant by *gender roles* with regard to environmental conservation;
- Consider how gender roles in natural resource management are part of their cultural heritage; and
- Recognize relationships between gender roles and environmental conservation.

## GENERAL ISSUES

1. What agencies and institutions give attention to gender roles in environmental conservation?
2. How do these agencies and institutions address gender roles as a tool for conservation?
3. Which traditions or beliefs address gender roles and environmental conservation?

## GENDER ROLES

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. What work do women do to manage local natural resources? For example, do they grow crops (which ones), raise livestock (which), or clean up garbage?			
2. What work do the men do to manage local natural resources? For example, do they grow crops (which ones), raise livestock (which), or clean up garbage?			
3. What work do youth do to manage local natural resources? For example, do they grow crops (which ones), raise livestock (which), or clean up garbage?			
4. What roles have changed over time with respect to the work that men, women, and youth in natural resource management do? (You will need to ask people to learn about this.)			
5. In what ways does the knowledge that women and men have about natural resources differ?			



**Guide Sheet**

# HUMAN SETTLEMENTS

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

Environmental education about *human settlements* (where people live) should enable people to:

- Understand how human settlements positively and negatively impact the environment;
- Consider how the pattern of human settlements is part of people’s cultural heritage;
- Recognize relationships between human settlements and environmental conservation;
- Know socioeconomic factors that influence the quality of life in human settlements; and
- Take action to enhance the well-being of human settlements.

## GENERAL ISSUES

1. What agencies and institutions address human settlement issues?

2. How do these agencies and institutions address human settlement issues?

3. What have been the results of these organizations’ efforts to improve human settlements?

4. Which traditions or beliefs address issues related to human settlements and the environment?

(continued)





**Guide Sheet**

**HUMAN SETTLEMENTS**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. Where do most people live in the community?			
2. What is the relationship between where people live and what they do to earn their livelihood?			
3. Which areas are considered public lands?			
4. What percentage of the land area is used for housing? What percentage of the land area is for commercial use? What are the other uses?			
5. What are the predominant colors in settlements in and around the community? What accounts for the various colors (green, brown, red, etc.)?			
6. What is the density of population in the community (people/square kilometer)?			
7. What are some positive aspects about the way people have settled and established their living spaces and structures in the community?			
8. What are some problematic aspects of the way people have settled and established their living spaces and structures regarding conservation of the community environment?			
9. Generally speaking, who owns the land where people have settled? How is that ownership legally enforced?			
10. What are the similarities and differences in the environmental quality of land that is owned by its occupants versus land that is rented, or land that is accessible to everyone?			



Guide Sheet

# INSTITUTIONAL AND COMMUNITY ENVIRONMENTAL MANAGEMENT STRUCTURES

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish. Copyright © 1997, Council for Environmental Education. Adapted with permission.

Environmental education about *institutional and community environmental management structures* should enable people to:

- Understand how functional management structures contribute to environmental conservation;
- Design and support management structures that are consistent with people’s cultural heritage;
- Know socioeconomic factors that influence the quality of these management structures; and
- Take action to enhance the proper functioning of institutional and community environmental management structures.

## GENERAL ISSUES

1. What institutional and community environmental management structures are now in place?
  
2. In what ways do these institutions directly or indirectly address environmental conservation?
  
3. What have been the results of these institutions’ efforts to conserve the environment?
  
4. Which cultural traditions or beliefs lend positive support to these institutions?

(continued)





**Guide Sheet**

**INSTITUTIONAL AND COMMUNITY ENVIRONMENTAL MANAGEMENT STRUCTURES**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. What is the geographic scope of influence of institutions and management already operating in the realm of environmental conservation?			
2. What is the nature of these institutions' environmental conservation work?			
3. What environmental work are these institutions <i>not</i> doing for which there is need?			
4. What work by these institutions might be considered detrimental to the environment?			
5. What rules, laws, policies, or regulations are applicable to the management of certain areas in support of environmental conservation?			







Guide Sheet

# LIVELIHOOD SECURITY

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

Livelihoods traditionally depend on the availability and access to natural resources even in urban environments. These relationships are dynamic, often changing in response to the pressures of modernization. Many modern industries in rural and urban areas depend directly on natural resources that are obtained locally, regionally, or nationally.

Environmental education about *livelihood security* should enable people to:

- Understand how livelihood-security strategies can contribute to environmental conservation;
- Pursue livelihood security strategies that are consistent with their own cultural heritage;
- Identify socioeconomic factors that support or constrain their livelihood-security options; and
- Take action to enhance their livelihood security in ways that conserve the environment.

## GENERAL ISSUES

1. What are the predominant forms of livelihood security in the community right now?
  
  
  
  
  
  
  
  
  
  
2. In what ways do these livelihood security activities have an impact on the environment?
  
  
  
  
  
  
  
  
  
  
3. What changes in livelihood strategies might lead to a more positive environmental impact?
  
  
  
  
  
  
  
  
  
  
4. Which cultural traditions or beliefs lend positive support to livelihood-security options?

(continued)

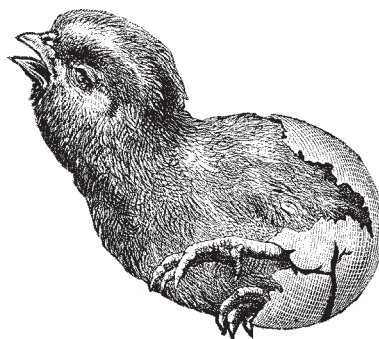




**Guide Sheet**

**LIVELIHOOD SECURITY**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. Which local natural resources are used in the community by people for their livelihood? (Hint: look in the markets; do not forget resources like soil, water, plants, animals, etc.)			
2. What indications exist that use of these natural resources by people for their livelihood may have negative effects on the environment?			
3. How have livelihood strategies evolved in the community during the past generation? Are any aspects of this evolution due to changes in people's access to natural resources?			
4. How do local people think livelihood strategies might change in the years to come?			
5. What opportunities may exist for making livelihoods more sustainable through improved management of the local environment?			
6. Are there any livelihood strategies in danger of extinction due to degraded natural resources? Which ones? Why might this be happening?			





### Guide Sheet

# PARKS AND PROTECTED AREAS

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

Volunteers, counterparts, and learners should be able to determine some of the most important biodiversity features of the area and the main threats to biodiversity in the area, as well as the trends and the opportunities for conservation and management. They should also be able to identify the protected areas and parks in the area and some of the main management issues.

Environmental education about *parks and protected areas* should enable people to:

- Understand how parks and protected areas anchor environmental conservation;
- Preserve parks and protected areas in ways that are consistent with their own cultural heritage;
- Identify socioeconomic factors that support or constrain parks and protected areas; and
- Take action to enhance the existence and expansion of parks and protected areas.

## GENERAL ISSUES

1. What community landscape areas are, or could be, designated as parks and protected areas?
  
  
  
  
  
  
  
  
  
  
2. How do parks and protected areas offer positive impacts on neighboring communities?
  
  
  
  
  
  
  
  
  
  
3. What changes in park and protected area management might lead to more positive impacts?
  
  
  
  
  
  
  
  
  
  
4. Which cultural traditions or beliefs lend positive support to parks and protected areas?

(continued)





**Guide Sheet**

**PARKS AND PROTECTED AREAS**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. How would you characterize the parks and protected lands that exist in the community? Are they public or private? Are they well-maintained? Do local people make use of them? Do they attract visitors?			
2. Who is responsible for the management of the parks and protected lands? Who owns them?			
3. What resources exist within the parks and protected areas? For example, are there water bodies, unique geologic formations, biodiverse wildlife and vegetation, accessible entrances and exits, and paths or road throughout?			
4. To what extent does the community depend on the resources inside the parks and protected lands for their livelihoods and sustenance? How does the community benefit from the presence of the parks and protected lands?			
5. What may be opportunities for improving the management of the parks and protected lands?			





Guide Sheet

SOILS AND LAND

From Educating for Life: Guidelines for Biodiversity Education, edited by Ewan McLeish. Copyright © 1997, Council for Environmental Education. Adapted with permission.

Volunteers, counterparts, and those learning about soils and land need to understand the recycling of nutrients in and out of the soil/land resource with particular regard to the role of organic matter. They need to understand the underlying causes of soil/land degradation and the suite of options that people can use for soil regeneration and land restoration.

Environmental education about soils and land should enable people to:

- Understand how soil fertility and land productivity are keys to environmental conservation;
Conserve and regenerate soils and land in ways that are consistent with their cultural heritage;
Identify socioeconomic factors that support or constrain soil and land conservation; and
Take action to adopt, adapt, and promote land-use practices to conserve and regenerate soils.

GENERAL ISSUES

- 1. What are the different soil and land types in the community and what are they used for?
2. How does the condition of soils have an impact on community health and well-being?
3. What changes in soil and land-use management might lead to more positive impacts?
4. Which cultural traditions or beliefs lend positive support to soil and land conservation?

SOILS AND LAND

Table with 4 columns: Optional Assessment Questions, Town Areas, Farming Areas, Natural Areas. Contains two rows of assessment questions.

(continued)





**Guide Sheet**

**SOILS AND LAND**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
3. How do the characteristics of soils and land change at different points in the landscape?			
4. Are there lands that are either being opened up to agriculture for the first time, abandoned, or converted to other uses? What are the trends?			
5. Who has access to land in your community? How is that access determined?			
6. What may be opportunities for improving the management of the parks and protected lands?			
7. Who are the progressive and innovative soil managers in your community? What is it that makes them progressive innovators?			
8. What soil management and land-use practices and technologies in your community appear to be sustainable? What makes them sustainable?			
9. What are some opportunities for improving soil and land management in your community?			
10. What constraints or enabling conditions exist or are needed to nurture these opportunities?			
11. Are there traditions or beliefs that contribute to conserving local soil and land resources?			
12. Have the local soil and land resources been mapped out in any way? Have these maps been shared and discussed with local folks?			
13. What agencies and institutions in the community are working on the conservation and management of soil and land resources? What have been the results of their efforts?			



Guide Sheet

WASTE MANAGEMENT

From Educating for Life: Guidelines for Biodiversity Education, edited by Ewan McLeish. Copyright © 1997, Council for Environmental Education. Adapted with permission.

Environmental education about waste management should enable people to:

- Understand how well-managed waste management contributes to environmental conservation;
Design and implement waste management activities consistent with their cultural heritage;
Identify socioeconomic factors that support or constrain waste management activities; and
Take action to adopt, adapt, and promote waste management practices.

GENERAL ISSUES

- 1. What are the different types of, and options for, waste management in the community?
2. How does waste management have an impact on community health and well-being?
3. What changes in current waste management practices are socially and economically viable?
4. Which cultural traditions or beliefs lend positive support to waste management?

WASTE MANAGEMENT

Table with 4 columns: Optional Assessment Questions, Town Areas, Farming Areas, Natural Areas. Contains two rows of assessment questions.





**Guide Sheet**

**WASTE MANAGEMENT**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
3. What percentage of waste materials in your community can be recycled? What kinds of materials are these (glass, metal, plastic, etc.)?			
4. How is waste currently managed in the community? Which waste materials are not used? How much? Which kinds are recycled?			
5. To what extent do farmers use some form of compost material on their crops as compared to their use of synthetic fertilizers?			
6. Do people in the community use latrines? If not, how do they manage their human waste?			
7. How is livestock manure managed, if at all? Are there other uses besides crop fertilization for which livestock manure is used?			
8. Is there a significant fly problem at certain or all times of the year? What explains this (fish waste; fruit waste; excessive manure; etc.)?			
9. Does anyone pay, in one form or another, to have their waste collected and taken away? What is the going rate for this service?			
10. Is there a reliable water supply (i.e., for making compost on a large or small scale)?			
11. What institutions are currently working on the challenges of waste management in the community, and what have been their results?			
12. What are some opportunities for working in waste management and who might participate?			



**Guide Sheet**

# **WATER RESOURCES AND WATERSHEDS**

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

Water availability and potability is a potentially significant catalyst for community action. Volunteers, counterparts, and those learning about water resources and the watershed need to distinguish among issues that are associated with subterranean water versus surface water sources. Surface water sources in particular present great opportunities for building community awareness and involvement. In addition, Volunteers, counterparts, and learners should explore the value of local watersheds, as well as threats to water quantity and quality.

Environmental education about *water resources and watersheds* should enable people to:

- Understand the link between water quality and watershed management;
- Understand the link between watershed management and environmental conservation;
- Design and implement water resource activities that are consistent with their cultural heritage;
- Identify socioeconomic factors that support or constrain water resource management; and
- Take action to adopt, adapt, and promote sustainable water resource management practices.

**GENERAL ISSUES**

- 1.** What are the options for water resource and watershed management in the community?
  
- 2.** How does water resource and watershed management have an impact on community health?
  
- 3.** What changes in current water resource practices are socially and economically viable?
  
- 4.** Which cultural traditions or beliefs support water resource management in the community?

(continued)





**Guide Sheet**

**WATER RESOURCES AND WATERSHEDS**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. What are the various sources of surface and subterranean water sources in the community?			
2. What are the fundamental water quality and quantity issues in the community?			
3. Do people and their domesticated livestock draw from the same water sources to drink?			
4. What is the range of uses that people have for the different water sources in the community?			
5. What are people's perceptions of why streams dry up periodically or permanently?			
6. Have the community water resources been mapped out in any way? If so, have these maps been shared with community folks?			
7. What institutions are currently working on the challenges of waste management in the community, and what have been their results?			
8. Where does water flow in the community? In other words, where do waterways originate and to which areas do their waters flow?			





Guide Sheet

# WILDLIFE AND DOMESTIC LIVESTOCK

From *Educating for Life: Guidelines for Biodiversity Education*, edited by Ewan McLeish.  
Copyright © 1997, Council for Environmental Education. Adapted with permission.

Wildlife and domestic livestock (cattle, goats, sheep, pigs, chickens, guinea fowl, etc.) have a significant role in subsistence and non-subsistence economies. Most wildlife populations are threatened even in protected areas. At the same time, many wildlife and domestic livestock populations are critical to people's food security and economic activities.

Environmental education about *wildlife and domestic wildlife* should enable people to:

- Understand the link among wildlife, domestic livestock, and environmental conservation;
- Manage wildlife and domestic livestock in ways consistent with their cultural heritage;
- Identify socioeconomic factors that support or constrain wildlife and livestock management; and
- Take action to adopt, adapt, and promote sustainable wildlife and livestock management.

## GENERAL ISSUES

1. What are the options for wildlife and domestic livestock management in the community?

2. How do wildlife and domestic livestock have an impact on a community's quality of life?

3. What changes in wildlife and livestock management are socially and economically viable?

(continued)





**Guide Sheet**

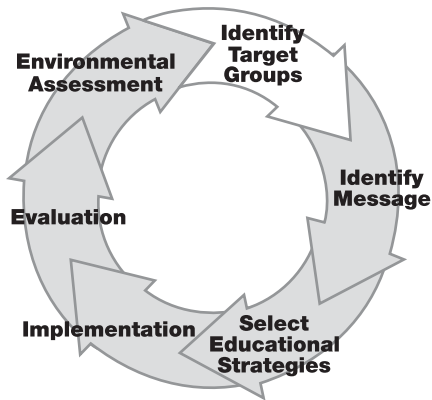
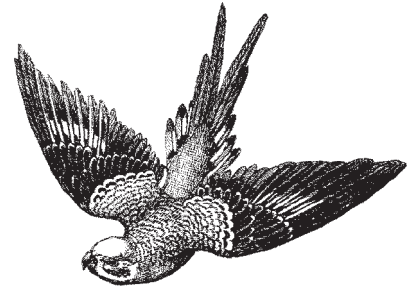
**WILDLIFE AND DOMESTIC LIVESTOCK**

Optional Assessment Questions	Town Areas	Farming Areas	Natural Areas
1. What laws govern wildlife and domestic livestock management in the community?			
2. Are there areas in the community in which wildlife reside and are legally protected? Describe these areas.			
3. Are there species of wildlife unique to your area that could potentially draw tourists (these are sometimes called <i>charismatic species</i> )?			
4. What are the major factors that determine the size and well-being of populations of potential or actually useful wildlife species in your area?			
5. Which habitats are favored by wildlife and to what extent are these habitats influenced by human activities, including the management of domestic livestock?			
6. Which local institutions work with wildlife conservation or livestock management?			
7. What traditional knowledge and practices promote wildlife conservation or the well-being of domestic wildlife?			
8. What are the opportunities for improving the management of wildlife and livestock?			
9. What are the natural predator/prey relationships among wildlife (as well as domestic livestock) in the community?			





# CHAPTER THREE IDENTIFY THE TARGET GROUP



By now, you have identified the environmental issues that your education program will address by using an environmental assessment. In this chapter, you will learn how to identify the target group(s): the group(s) of people who will actually implement the solutions. Environmental educators can waste time and energy by directing education toward inappropriate target groups who have little or no impact on environmental management and decision-making. Therefore, target groups should be made up of people whose practices directly affect the environment, such as poachers, as well as the people who influence those people, such as community leaders, government officials, and/or the general public. There may, in fact, be several target group possibilities, with the most obvious not always being the most appropriate. Therefore, an effective environmental education program may focus on several different audiences.

## MACHHA BAZAR

You have been having long discussions with your counterpart and her manager about what River Conservation wants to do. They are concerned with the impact from increased numbers of vehicles, fishermen, and boaters, which is causing fish numbers to decrease, the riverbank to erode, and which may be infringing on wildlife habitat. They are also concerned about the economic impact to residents and the safety issues posed by the new people who aren't considered part of the community. Prior to your arrival, they decided to initially focus their resources on environmental issues. Their mission is for local residents, local organizations and government to work together to develop and implement management guidelines that protect and sustain the natural resources of Machha Bazar for future generations. Their goals are to:

- work with the schools to educate children about the environment and sustainable development;
- help the fishermen organize and develop a plan for management of the fisheries that will maintain healthy river habitat and healthy populations of river fish; and
- work with the park, especially the local ranger, to develop educational materials for the public that will increase respect for wildlife and wildlife habitat, and decrease misuse of the park.



(continued)





### Environmental Education Plan for Machha Bazar

In an effort to get organized, you have drawn yourself a chart to put on the wall to organize the steps that you'll follow when creating and implementing an environmental education program.

Activity	Target Group	Message	Strategies	Implementation	Evaluation
Class					
Eco-club in school					
Fishermen's advisory group					
Environmental education for the park					

## GUIDELINES FOR IDENTIFYING TARGET GROUPS

The target group of an environmental education program must be able to:

- significantly contribute to the solution of the identified problem; and,
- perceive that the advocated behavior changes are in its best interest.

It is crucial to identify target groups that meet both of these requirements in order to achieve the desired environmental results. Educators need to approach this task with as few preconceptions as possible. Although the target group possibilities are virtually endless, some generalizations might help you, your counterpart, and the community advisory group focus on the groups of people who might be most appropriate:



### **People directly affecting natural resources.**

This is usually the easiest group to identify because its practices directly affect the environment. Unfortunately, this group is frequently maligned, although they may have few alternatives to current practices. They may also be quite aware of the negative effects their actions have on the environment, but are economically or socially constrained from implementing alternatives. Environmental education programs directed at these people are frequently most appropriate when they offer alternatives and/or specific methods for managing resources and demonstrate advantages to the community.



### Extension Workers or Resource Management Educators.

As a rule, these people work for forestry, agriculture, or other national extension services. They usually do not harvest natural resources themselves, but introduce new products and techniques to those who do. Educators, therefore, may find it appropriate to assist extension agents with environmental education programs or to train them in environmental management. Involving extension workers in education efforts can maximize the program's impact, since those workers can reach many more people. They may also effectively establish communication links among community residents and distant government officials and other decision-makers. Through these extension workers, environmental educators also create local capacity to maintain the program.



### Local Leaders, Government Officials and Agencies.

Government officials and local leaders can significantly affect environmental management by passing and enforcing laws and by initiating and supporting projects that negatively or positively affect natural resources. They are responsible for projects to construct dams and roads, colonize large tracts of land, and can encourage or discourage reforestation. They fund health, sanitation, education, and extension programs; and act to establish parks and reserves. To work effectively with this group, environmental educators need to determine which government officials and agencies can impact environmental problems and how. An effort should be made to understand how relevant programs and positions are funded, the interests and concerns of the individual or agency, and official mandates.

### Influential Community Members.

These people are often "opinion leaders" and may be members of the political party in power or respected community residents. Since the people the educator wants to influence will often follow the example of influential community leaders, this can be a very productive target audience.

### The General Public.



This group is the most targeted by environmental education programs. Mass-media approaches are generally used to reach this audience. A mass approach often does not require the detailed community knowledge that a more narrowly targeted program demands and can seem easier to implement. When implemented as stand-alone activities, such "short-cut" approaches usually fail to adequately address environmental problems.

On the other hand, a broad public appeal implemented as a complement to more tailored approaches can be extremely effective, especially in creating receptivity for more detailed follow-up environmental education programs. Development workers and educators should have a specific reason for directing a program towards the general public, and it should be clearly stated in the program objectives how the general public can contribute to the resolution of an environmental problem.



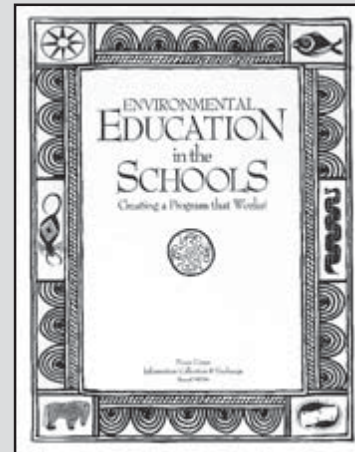
## Schoolchildren.

Environmental educators often address this group with the intent of creating environmentally knowledgeable adults. While programs in the schools are an important component of environmental education programs, serious environmental problems may exist that require more immediate attention, and to which priority must be given. Although children may not be able to contribute to such an effort, they can be an appropriate target group if some of the following conditions are met:

- Are a significant number of schoolchildren likely, some day, to play a role in managing the environment? Will they be future farmers, government decision-makers, or members of an influential general public? In many rural areas, environmental education can be justified because so many of the children drop out of school early to work on family farms. For this reason, educators should consider designing rural school-based education programs that have objectives similar to those of adult education programs in the same area. For example, teaching basic soil conservation and reforestation techniques to rural school children can be appropriate.
- Can teaching schoolchildren effectively reach community adults? A school environmental education program can involve parents through school field trips and tree planting, litter clean-up, and other community campaigns. In effect, school environmental education programs can supplement or complement adult extension services.
- Can schoolchildren significantly contribute to the resolution of present environmental problems (e.g., can the children plant windbreaks or fuelwood plantations?).
- Have the identified priority environmental education objectives been achieved, so that education efforts can be redirected towards creating awareness and changing attitudes in future decision-makers?
- Has the host country itself requested that environmental education be incorporated into the school program?

After identifying the target groups most capable of contributing to environmental management, educators must determine which group is likely to be receptive to the messages of the program. Behavior change is based on the assumption that people will do what they think will most benefit them, provided that their socioeconomic circumstances allow them to change their behavior and implement alternatives.

**People are not likely to change behaviors that they perceive to be contrary to their own interests.** This can be as basic as a place to live, a job and enough to eat; or as intangible as social status and ego satisfaction. When people must be convinced to do something that they believe is not in their best interests, education is not the tool to use. Law enforcement, financial compensation, or social pressure, for example, must be used instead.



In addition to the information contained in this manual, the Peace Corps' publication *Environmental Education in the Schools* [ICE No. M0044] can be used as a resource for creating and conducting in-school EE programs.





Often, the people closest to an environmental problem are the least able to alter their actions. Take, for example, farmers who are over-harvesting wildlife and trees in a natural forest. To convince the farmers to do otherwise, an environmental education effort has to advocate practical alternatives that can meet their need for animal products and wood. Without alternatives, the effort will not be able to convince the farmers to change, even if their actions are detrimental to the natural resources and the community.

Another way to change the farmers' behavior may be to direct an educational effort at people who can motivate the farmers to change, and have it in their best interest to do so. For instance, the educational program may be directed at community leaders who can provide the farmers with financial incentives to plant trees, or at neighbors being harmed by the farmers' behavior who can pressure leaders to provide farmers with alternatives.

At times, environmental education programs can more effectively affect people's behavior when focused indirectly at them. For this reason, environmental educators should not assume that the people whose behavior ultimately needs to change are the best or only target groups for their educational efforts.



## MADAGASCAR

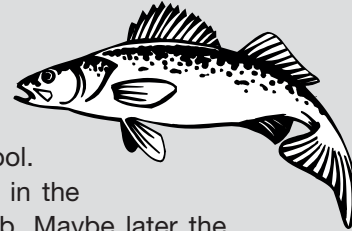


A Volunteer was placed at a forest station, which serves as a zoo and captive breeding center for endangered lemurs. Although her job to assist with developing environmental education programs and materials was well-defined, she wanted to engage in community development activities. However, she was a long way from the closest village, with its market and community center. Because her day-to-day contact was with the other people who worked and lived at the zoo, she decided to make them her community. The result turned into something much bigger than she ever imagined.

Zoo workers had the right to farm in order to satisfy some of their food needs, and had been growing rice when the Volunteer arrived. Through her conversations with zoo personnel, she found that they were interested in further developing their small tracts of land. The workers and their families worked with the Volunteer to develop a project plan and proposal to train themselves in small animal production, beekeeping, agroforestry and improved farming practices. The Volunteer has reported early success and in her last report, she wrote: "as of the end of September, all the houses have been built and populated with their respective chickens and ducks. Many of the local material hives already have bees in them...there really is no other project like this going on in our area so I feel that the potential to pass this [information] on is high. I also feel like this is paving the way for my community [the zoological park] to truly become a regional leader in conservation."



## MACHHA BAZAR



As you explore the activities that you and your counterpart are thinking about implementing, you try to imagine what will happen. It seems obvious that the first project requires working with the school. Your counterpart told you that environmental science was not taught in the school, but that you, she, and the teachers can form an ecology club. Maybe later the biology and social studies teachers could incorporate environmental topics into their curriculum, but for now, a club seems the most feasible. The fishermen pose a different problem: how to organize the fishermen, or bring them together to discuss their ideas? Developing educational materials for the park would have to be discussed with the ranger to find out if he is interested, if there are any rules regarding an educational or interpretation project, and if the park could accept materials from a nongovernmental organization (NGO). For that project, it seems that the people to target are the general public who use the park for all sorts of purposes, and maybe less directly, the poachers. You return to your chart and fill in the new information.

Activity	Target Group	Message	Strategies	Implementation	Evaluation
Class	students and teachers				
Eco-club in school	students and teachers				
Fishermen's advisory group	fishermen – advisory group				
Environmental education for the park	general public; maybe poachers				





Ask the following questions to help select target groups:

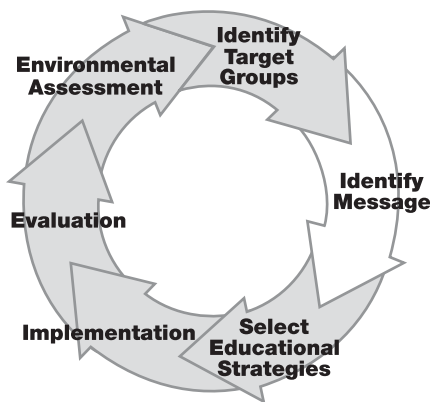
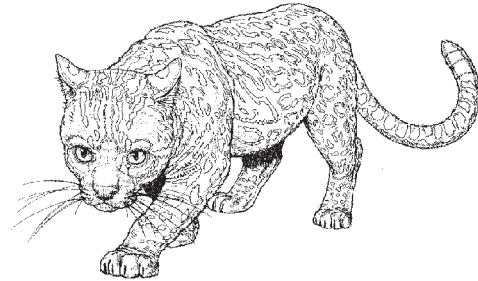
- Who affects the natural resource(s) under consideration?
- Is it in their interest to change their behavior?
- What intervention is needed to change behavior (e.g., law enforcement, education, government policy, social pressure, financial incentives)?
- Who will benefit from the education program? Who will benefit from the measures advocated by the program? Can they play a role in getting the education program implemented?
- What influential community members can help to convince people to change behavior?
- Are there influential community members who can provide incentives for people to change behavior (e.g., financial inducements, law enforcement, social pressure, government policy)?
- Does the environmental solution require government input (e.g., laws, policy, leadership, law enforcement, funding, support for new programs)?
- Which government agencies can contribute to solving the problems? How?





## CHAPTER FOUR

# IDENTIFYING THE MESSAGE



Creating and identifying content for an environmental education program should be a dynamic, participatory process that involves the Volunteer, counterparts, and community educators. It should reflect the specific circumstances of the community and target group, including social, cultural, environmental and economic realities. A thorough understanding of the community on the part of educators, and a careful planning process that defines the community vision, goals, objectives, and tasks will likely yield effective and relevant program content.

Now that you have identified priority environmental problems (Chapter Two) and the groups most capable of implementing identified solutions (Chapter Three), you are ready to prepare appropriate information to present to the various groups. This chapter assists in identifying and organizing the types of information most appropriate for each particular situation. Specific information that can form the actual content of the lessons can then be assembled from the environmental assessment (Chapter Two), other technical manuals and locally available sources.

*Careful selection and organization of content is crucial for a program's success.* This task can be challenging since there is often abundant information. The guidelines below may help in developing such efforts.




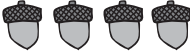
## DETERMINE THE LEVEL OF ENVIRONMENTAL AWARENESS IN THE TARGET AUDIENCE

The first step in determining program substance is to learn why people are behaving in a way that needs changing. Educators may have some good ideas about why this behavior is occurring as a result of the extensive environmental assessment, which should be referred to regularly. Educators can build upon the information gathered during the assessment to further explore specific issues with the target group.

It may help educators to use a continuum when thinking about the educational content of the program.



Where do target groups lie on the following continuum?

<p><b>STAGE 1</b></p> 	<p>Unaware of the problem.</p>
<p><b>STAGE 2</b></p> 	<p>Aware of the problem, but not aware of their relationship to it, or their role in creating or perpetuating it.</p>
<p><b>STAGE 3</b></p> 	<p>Aware of the problem and their relationship to it, but not aware of its solution.</p>
<p><b>STAGE 4</b></p> 	<p>Aware of the problem, solution and what they should do, but for whatever reason, unable to implement solutions. What circumstances must change in order for behavior to change? Economic, social, political?</p>

The continuum provides a tool that educators can use when thinking about next steps, and demonstrates how achieving competence and awareness in one stage provides the foundation for the next stage. Approximating the position of the target group on the continuum can help educators to create program content that is relevant to the current situation, and provide some indication of future programming needs. If, for example, the target group clearly understands and agrees that there is an environmental problem, educators need not spend a lot of time on defining the problem (Stage 1), and can begin to explore with participants how the problem affects them, and how certain behavior or practices may create or exacerbate the problem (Stage 2).

**For target groups at Stage 1:** 

The education program’s message should be straightforward and informative. Educators don’t need to focus on details; the main effort should be on creating awareness in the target population. Accuracy is crucial and educational content should build on locally relevant circumstances and knowledge. Avoid over-sensationalizing or emotionalizing messages.

**For target groups at Stage 2:** 

A more substantive message is needed and a thorough knowledge of the community is required. Here, people’s general awareness of an issue should be developed into an understanding of how they are affected by and are affecting the environmental situation. The environmental problem should always be related to the target group’s particular interests. For example, firewood shortages and flooding of residential areas might be presented as the consequences of the deforestation of a watershed, since those consequences affect them directly. The disappearance of a rare bird species and the loss of scenic beauty that are also the result of deforestation will be of less concern to this target group.





### For target groups at Stage 3:

Stage 3 is a turning point for the environmental educator and is where many programs fall short of their intended goal. The target group must clearly understand what they should do to help solve an environmental problem. It is counterproductive for the educator to generate awareness and concern about an environmental problem and then abandon the program, which can cause frustration and apathy in the target group. Environmental solutions can be as simple as requesting children not to throw candy wrappers on the ground, or as major as recommending that farmers change their planting and plowing methods. Whatever the solution, the education program must identify it and present it in a way that relates to the target group's interest.

### For target groups at Stage 4:

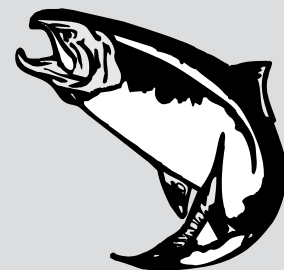
Further investigation by educators may be required at this stage. There are many reasons why people do not do something that appears to the outsider to be in their best interest. Behavior may result from economic circumstances, religious taboos, traditional customs, and/or other sociopolitical factors. Educators may find that proposed earlier solutions were developed without sufficient local participation. If there appears to be no "logical" explanation for a certain behavior, the process and assumptions that led to the selection of that particular solution should be reviewed. Take time to go back to determine where something may have been missed or misinterpreted.

## MACHHA BAZAR

The first set of tasks in the development of the environmental education program for Machha Bazar is to contact school personnel, fishermen, and the park ranger to engage in a dialogue about how to proceed with environmental education.

After meeting with the school personnel, you, your counterpart and other community-based educators have agreed to come into the school and teach one class a week on local ecology and basic environmental studies. It will be in the middle school biology class, so you will have to coordinate your lessons to the subject of the week. You and your counterpart will design activities to guide the students along the continuum from environmental awareness to participation. You have also agreed to lead an after-school ecology club for secondary students. The club will meet weekly and the goals will be to learn about the environment, develop community service projects, and have fun.

After speaking to the park ranger, you have learned that he is eager to have someone do some interpretation in the form of signs and printed matter. He tells you that the ministry supports this type of education, but he doesn't have the time or background to complete it himself. He wants to publicize the regulations of the park because he is short of resources to enforce the rules. He would also like it if people who see poachers would contact him. Although poachers might try to tear down signs, he thinks enlisting public support would be helpful.



(continued)



You and your counterpart also went down to the riverbank and talked with fishermen about forming an advisory group, which would eventually provide knowledgeable and appropriate suggestions on how to best protect and utilize the river and fish resources. The fishermen were receptive to the idea and got quite vocal about how to protect the fish. They wanted to know the purpose of an environmental education program, and they talked about who should be on the advisory group. Later, you discussed the idea with your counterpart and decided that you needed to meet with fishermen so that all interested parties could discuss the potential roles and responsibilities of an advisory group.

## PARTICIPATORY DEVELOPMENT OF PROGRAM CONTENT

Program content should be developed using a participatory approach that includes, at a minimum, your counterpart and the advisory group.

- 1. With your counterpart and advisory group, write a statement that describes what they hope for in the future regarding to their selected priority.**

The first step is to have a clear and concise statement of what the future would be if they were able to resolve the environmental situation.

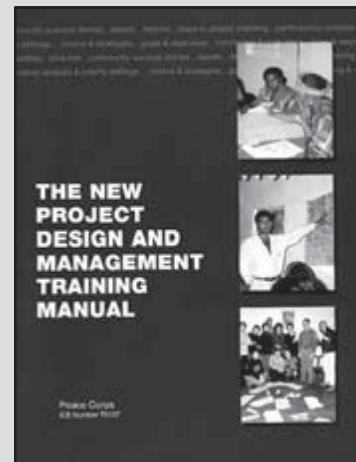
**Statement Example:** In our community, people are able to meet their household fuel demand in a way that is sustainable with respect to the surrounding forest. Women and children are able to easily access fuel, which leaves them time to engage in other activities.

- 2. Identify the resources in the community that will allow the community to achieve this vision.**

The environmental assessment should contain information that would help identify the strengths and assets that will be helpful to defining program content.

For example:

- A motivated core group of community members.



This section is based on the project design sessions in *The New Project Design Manual* [ICE No. T0107], which presents a much more extensive and rich process for developing projects. If possible, Volunteers should refer to that manual.



- Many individuals with diverse knowledge of forest ecology and how to harvest forest products in a traditional and sustainable manner.
- Several well-functioning NGOs with contacts outside the community and access to many informational resources.
- Several different funding options.
- A Peace Corps Volunteer with knowledge of environmental education programs, and the ability to travel and make contacts outside of the community.
- Several unused and commonly held areas within town limits.
- Local artisans.



### **3. Select the best strategies and approaches for the project.**

The group should brainstorm ways for achieving its vision given the resources available.

For example:

- With all the knowledge and resources available to us, the community will establish woodlots of fast-growing native tree species that can be used for firewood and/or other purposes.
- The core group will work with women to experiment with different fuel-saving methods, and to test other types of fuel.

### **4. Develop project goals and objectives.**

Project goals:

- Restate the vision and approach in terms of what is to be accomplished;
- Define the long-term results or changes that the project will bring about; and
- Are realistic and include an overall time frame.

Project Objectives:

- Are short-term results you need to meet the longer-term goal(s) of the project;
- Are SMART: **S**pecific, **M**easurable, **A**ttainable, **R**ealistic, and **T**ime-bound; and





- Answer these questions:
  - Who is the target group or individuals expected to change?
  - What action or change is expected?
  - When will the desired action or change be accomplished?
  - How much change is expected?

**Goal Statement Example:** By the end of one year, the core advisory group, in conjunction with neighborhood representatives, will have initiated community woodlots in each of the neighborhoods in Machha Bazar so that communities have access to a sustainable source of fuelwood.

**Objective 1** – By XX month, core group members will have conducted community meetings in each of the five neighborhoods to discuss with at least 80 percent of the community the rationale for community woodlots.

**Objective 2** – By XX month, core group members will have implemented community-wide environmental education campaigns that demonstrate the necessity and benefits of woodlots so that in each of the five neighborhoods, at least 50 percent of the community supports the implementation of the woodlot.

**Objective 3** – By XX month, members from the core group will have trained five neighborhood volunteer representatives (men and women) in skills on how to develop and maintain community woodlots.

**Objective 4** – By XX month, the five volunteer representatives, in conjunction with the core advisory group, will have planted 750 seedlings in each of the five woodlots.

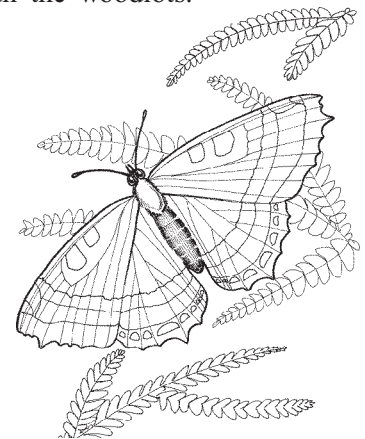
## 5. Develop an action plan for achieving objectives.

To develop a plan, the group must identify the tasks and activities that will be necessary to achieving the objectives. For example:

**Objective 3** – By XX month, members from the core group will have trained five neighborhood volunteer representatives (men and women) to develop and maintain community woodlots.

Tasks:

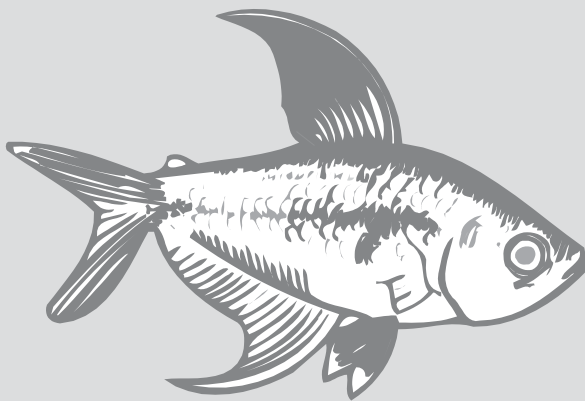
- Ask community to select five responsible men and women to run the woodlots.
- Select and train teachers who will train community members.
- Develop curriculum.
- Research and pick tree species.
- Acquire materials and tools needed to conduct classes (these can later be used at the woodlots).
- Develop a class schedule.





## MACHHA BAZAR

You and your advisory committee found that schoolchildren and park visitors are at Stage 1 on the continuum. You will need to use the participatory process to develop an awareness program that points out features of the environment and demonstrates ecological interactions and dependencies among these features. For the children, that will be in the form of a class and an outdoor club. For the park visitors, it will be in the form of signs, brochures, posters, and radio announcements. The fishermen are at a different level of awareness. They want to take action, and they have some ideas about what action they think will be helpful. The program for the fishermen will include the formation of an advisory group that will act as a forum for their ideas. Prior to that, you and your counterpart will need to gather data about the fish, and find out how the advisory group can have input into policy making. In conjunction with the advisory group and counterpart, you should develop a description of service that outlines the responsibilities of the advisory group.



You and your counterpart have decided on a set of messages for the schoolchildren. In the classroom, you will focus on using the students' real environment to expand their knowledge of biology. For example, if the teacher is teaching about arthropods one week, you will bring in some local bugs and teach the children about the importance of insects to the ecosystem. The eco-club will be different. You will focus on natural history and observation skills. Each meeting will feature a nature walk where students learn to identify components of an ecosystem and ecosystem services.

The park project will have a different focus. Some of the signs will describe components of the ecosystem along with descriptions of their importance to the whole system and to humans. Some of the signs will describe proper ways to behave in the park and why, and some will list regulations, how to comply, and how to report infractions. Brochures, posters and radio spots will focus more on the outstanding features in the park and on development of a respectful attitude. When all these are ready to be distributed, there will be an afternoon kickoff event focusing on the park, its beauty, importance, and care.

Fishermen will convey the message that they have developed. They will be organized to give advice on an education program that will inform the public about the importance of fish as a resource and how to protect that resource. They will also offer advice to governmental organizations about policies for fishing and the protection of fish.



Environmental Education Plan for Machha Bazar					
Activity	Target Group	Message	Strategies	Implementation	Evaluation
Class	students and teachers	<ul style="list-style-type: none"> <li>relationship of humans to environment</li> <li>environmental aspects of school curriculum</li> </ul>			
Eco-club in school	students and teachers	<ul style="list-style-type: none"> <li>observation</li> <li>local natural history</li> </ul>			
Fishermen's advisory group	fishermen – advisory group	<ul style="list-style-type: none"> <li>fish ecology</li> <li>specific concerns of fishermen</li> </ul>			
Environmental education for the park	general public; maybe poachers	<ul style="list-style-type: none"> <li>ecological information about park</li> <li>park rules</li> </ul>			

## BASIC EDUCATIONAL PRINCIPLES

### Frame the program in a familiar context.

An education program should build on existing knowledge and affirm the beliefs and practices that have a positive effect on the environment. An education program should occur in the context of the community and should relate environmental problems to current socioeconomic and environmental realities. For example, it is likely that farmers in an agricultural community will understand far more about the local agriculture and environment than an outsider. Educators should use this knowledge to inform the educational program. In addition to creating an environmental education program that affirms local knowledge, educators should frame information in a context that is understood by the target group. An educator will be far more likely to inspire behavioral change if the education program is related to existing concerns and presented in terms familiar to the target group.

### Educators should be alert to the factors that can inspire behavior change.

Some of those might be economic, cultural, or social. To accept unfamiliar ideas and knowledge, people need to adjust attitudes and beliefs. Most individuals resist change because altering beliefs and practices can cause stress and confusion. Therefore, educators must discover motivating factors that can elicit change. For example, people with no real interest in nature or outdoor activities may become





motivated to preserve natural areas because these areas represent a unique and valuable national heritage that can be admired by both nationals and foreigners.

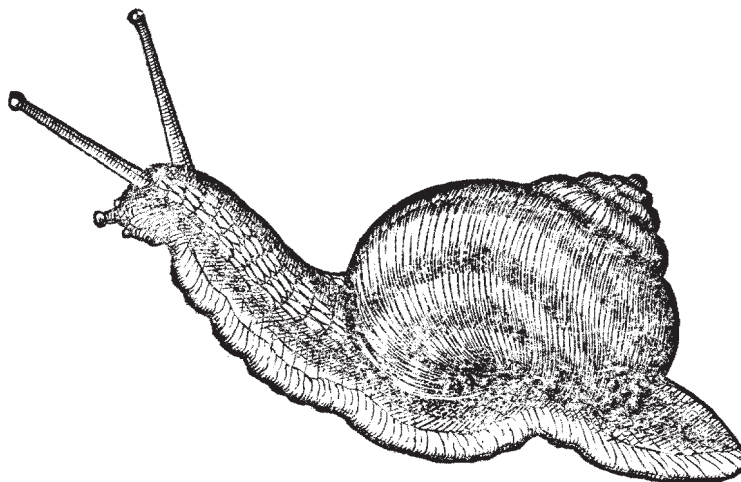


**When learning new information, people look for patterns, generalities, relationships, and organized structured wholes, rather than separate details.**

A program should be structured so that the learners move from more general to more specific information, from the “big picture” to the smaller details. Broad concepts should first be presented to learners so they have a framework in which to incorporate further information. Details get lost over time when not linked to general themes. For example, in the case of deforestation, town leaders are unlikely to benefit from an environmental education program that begins by detailing the biological components of a tree. Although this may be useful to those caring for the trees, it does not really address the larger issue of why planting trees can benefit the community. Rather, exploring the broad concept of reforestation would allow the leaders to incorporate more specific information about the species and growth patterns meaningfully.

The following questions can help educators determine if they are on track:

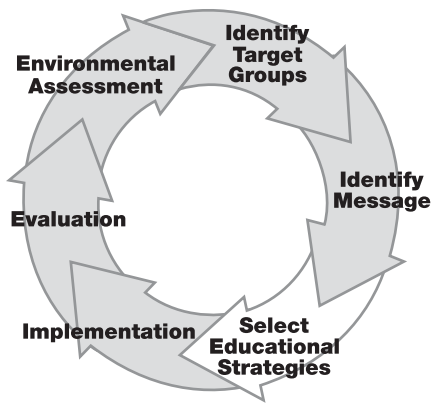
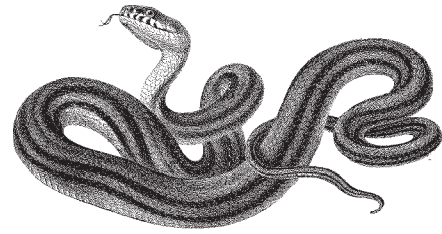
- What environmental problem does the education program address?
- Why is the program directed at this particular problem?
- How does the education program lead to a solution of the problem?
- What target groups have been identified and why?
- What knowledge and attitudes is the program trying to convey to the target group?
- How has the content been informed by the local environment, and community and target group socioeconomic and cultural circumstances?
- What are some of the best avenues and/or methods for communicating program content to the target group?





# CHAPTER FIVE

## CREATING AN EDUCATIONAL STRATEGY



Strategies used in environmental education programs range from producing posters to developing national forestry extension programs. In the development context, environmental education strategies must fit existing environmental, political, and social situations to be effective. Environmental education Volunteers are likely to find that the methods with which they are familiar are inappropriate in the context of the host country, and they will be challenged to create innovative and culturally appropriate approaches that resonate with the community and target group. Effective environmental education Volunteers will collaborate closely with community educators, advisory groups, and counterparts to create an education program that is shaped by the people who will be participating in, and affected by, the program.

As outlined in Chapter Four, each target group will require an approach that is crafted with their particular interests, abilities, and circumstances in mind. It may help to find out what education and/or other development programs have been successful in the past and why. Following are some considerations that can help you, your counterpart, and other educators determine what the strategy should be for the particular group you are trying to influence.

### CONSIDERATIONS

An effective environmental education strategy will:

1. Reach the program's target group(s).
2. Effectively communicate the program's information.

There are several factors to consider when selecting an appropriate and effective environmental education strategy. To craft a good strategy, you, your counterpart, and other community-based educators will need to consider who your target group is, the amount and type of information to be communicated, existing assets and building blocks that can facilitate the education program, and various logistical and financial factors.





Review the following questions and issues when selecting a strategy or strategies.

**Tailor your strategy to your community and target groups:**

● **Who is the target group?**

Define the group(s) by age, occupation, and relationship to environmental problems.

● **What are the avenues of communication in the community?**

How do the target groups receive information? Do they listen to the radio or television; read a certain newspaper or magazine; watch for bulletins posted in the town square; communicate with friends at the central market? Do they listen to the local extension agent, the religious leaders or the local political leader at party meetings? Who are considered reliable community leaders, role models, and conveyors of information? Can any existing communication mechanisms be used in an environmental education program?

● **What is the level of literacy and availability of printed information?**

What kinds of printed material might work for the target group(s)? Experiment with a number of formats to discover which is most effective.

● **What kind of message is to be conveyed?**

- Awareness messages are often conveyed with the following techniques: mass media, exhibits and posters, brochures and booklets, traveling road shows, special events and campaigns, audiovisual programs.
- Messages concerning practical, “how-to” information are often conveyed using the following techniques: field trips, demonstration plots, brochures, posters, flyers, newspaper supplements, extension programs.
- Messages that convey intensive, complicated information use the following techniques: school curricula, training workshops, extension programs, seminars, one-on-one communication, clubs.

**DON'T FORGET:**

You may have discovered some other relevant information during the environmental assessment, so be sure to refer back to it periodically.





● **Which strategy corresponds with the message most effectively?**

How much information does the target group need to know to change its environmental behavior? Is the message to be communicated short and simple, or long and more complex? Will it have to be repeated periodically or will one presentation suffice? Will the education program be long- or short-term?

**Practical and logistical considerations:**

● **Personnel**

Who is available to carry out the educational program? How much time can they devote to the program? What skills do they have, and how can these skills be used? How much training, supervision, and direction do they need?

● **Logistical**

How accessible are the target groups? What type of transportation do you (or they) need? How much time will be spent in travel?

● **Time**

How much time does the development worker have to devote to the program? For the program to succeed in the long run, what must be done before the development worker leaves?

● **Policy**

Are there any policy considerations that can help or hinder the program?

● **Resources**

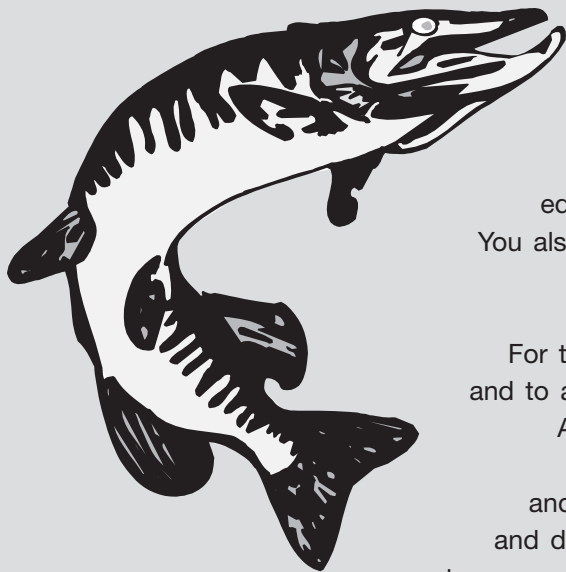
How much money, equipment, and other resources are likely to be available? Are there any potential outside agencies able to provide these resources? How much can be contributed “in-kind”?



Depending on the answers to these questions, an education strategy can be created that fits both the target group and the program content. A number of educational strategies are described in Chapter Ten, “Environmental Education Community Projects.”



## MACHHA BAZAR

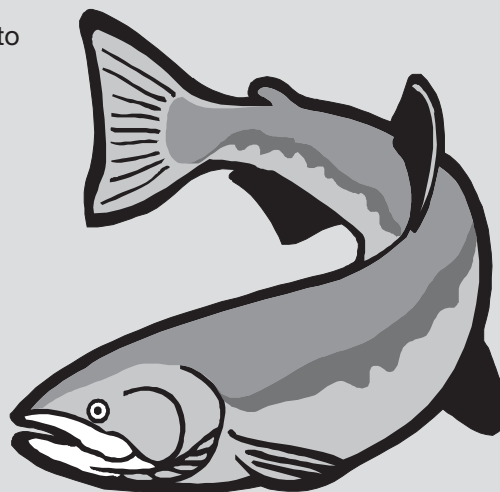


Now you are ready to get specific about your project in Machha Bazar. In the classroom, you decide you want to use lessons that include demonstrations and outdoor activities. So you search for environmental education resources that have those kinds of lessons. You also need to find out what is in the biology curriculum so you can coordinate with the teacher weekly.

For the Eco-Club, you want it to be fun and informative, and to align the activities along the Awareness, Knowledge, Attitudes, Skills, and Participation continuum. To find out the children's level of environmental knowledge and behavior you will need to conduct an assessment, and decide from there if you begin with nature walks that stress awareness, or if you can emphasize particular skills and behavior. It is your hope that the students can create and implement a community project.

You, your counterpart, and park personnel are already quite sure about the strategy for the park; the park team will implement an education campaign that uses signs, brochures, posters, radio spots, and community awareness events. Although it is clear how you will convey information, it is not yet clear what the exact message will be. In crafting the message, you will have to consider literacy levels and what kinds of visual representations will resonate with park visitors. Consider creating messages that build on cultural ideas and images already familiar to visitors.

You will act as a catalyst for organizing the fishermen's advisory group. You decide a good first step would be to meet with your counterpart and fishermen to introduce the idea of an advisory group and to explore what the purpose, goals, and activities of the group would be. After this meeting, your counterpart suggests that she and you visit a number of fishermen, both those who have been vocal and those who have not, and elicit their opinion about forming such a group. As you chat with fishermen, try to notice not only what is said, but also what is not said. Who seems to be the most respected individual? Who seems to be a good listener? As you seek to learn about the existing dynamics between individuals and within the fishing community, maintain confidentiality.



(continued)





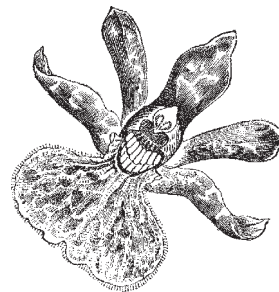
<b>Environmental Education Plan for Machha Bazar</b>					
<b>Activity</b>	<b>Target Group</b>	<b>Message</b>	<b>Strategies</b>	<b>Implementation</b>	<b>Evaluation</b>
Class	students and teachers	<ul style="list-style-type: none"> <li>• relationship of humans to environment</li> <li>• environmental aspects of school curriculum</li> </ul>	<ul style="list-style-type: none"> <li>• Teach one class/week using inter-active approaches and incorporate local field study</li> </ul>		
Eco-club in school	students and teachers	<ul style="list-style-type: none"> <li>• observation</li> <li>• local natural history</li> </ul>	<ul style="list-style-type: none"> <li>• Club meets one afternoon/week for field based EE</li> </ul>		
Fishermen's advisory group	fishermen – advisory group	<ul style="list-style-type: none"> <li>• fish ecology</li> <li>• specific concerns of fishermen</li> </ul>	<ul style="list-style-type: none"> <li>• Gather info</li> <li>• Description of service</li> <li>• Call organizational meeting</li> <li>• Meetings</li> <li>• Develop plan</li> </ul>		
Environmental education for the park	general public; maybe poachers	<ul style="list-style-type: none"> <li>• ecological information about park</li> <li>• park rules</li> </ul>	<ul style="list-style-type: none"> <li>• Interpretative signs</li> <li>• Brochures and posters</li> <li>• Kickoff event</li> <li>• Radio spots</li> </ul>		





# CHAPTER SIX

## IMPLEMENTATION



Before implementing the project, you, your counterpart, and community educators should have created an environmental education program that includes the following components:

- a description of program content and rationale;
- a description of the target audience;
- the education strategies that you'll use;
- goals and objectives of the program;
- a budget; and
- an estimate of personnel needs.

Prior to the actual implementation of the plan, there will be a number of necessary tasks including: acquiring funds, equipment, and any additional personnel; training of personnel and/or community educators; finalizing interagency agreements; and confirming logistics.

### MACHHA BAZAR

You, your counterpart, and the various groups with whom you work have planned your program and you are ready to start! You will prepare your first two or three lesson plans for the school, including an assessment to find out what the students already know. For the first meeting of the Eco-Club, you plan some awareness and knowledge activities that can be used during a group walk. You will focus on observing the area adjacent to the school and try to generate some understanding of ecosystems. At the end of the session, you will have a closing activity that provides a review and reinforces what has been learned. You will meet with the park ranger and make a list of objectives for visitor behavior, so you can begin to work up language for the signs and other media. You and your counterpart will also focus on forming an advisory group with the fishermen.

You and your counterpart are ready to go to the schools, fishermen, and park to try your ideas. In an effort to discover potential problems, you and your counterpart decide to do a few pilot tests. Your counterpart suggests that she teach one of the lessons in the school, which you can observe, and you decide to take the children outside to see what their reaction is to learning in a different setting. You incorporate some observation



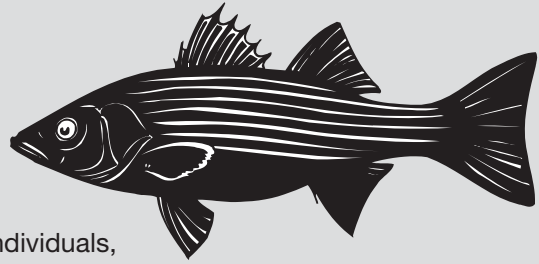
(continued)



skills into the lesson so you can estimate the students' observation skills, which will help you to plan the first Eco-Club session.

Your conversations with fishermen have yielded some interesting information, and overall, there seems to be support for forming an advisory group.

However, you have some concern that only the richest fishermen will be represented on the panel, and you discovered some animosity among various individuals, especially between those who have lived in the community for many years, and those who have just arrived. Given what you and your counterpart have learned about the skills, needs, and concerns of the fishermen, together you create the basic plan for forming the group, and establish the basic purpose and goals of the group. You and your counterpart recognize that it is important for all views to be represented, which figures into the creation of an advisory group purpose statement, as well as the strategy for selecting representatives. You decide on an initial time period that members will serve, and come up with a very basic 'description of service', which clearly states roles and responsibilities. In the next meeting with the fishermen, you present this plan, and ask for input on how to improve the process of forming an advisory group.



## GUIDELINES

Implementation of the program will occur much more easily if the design process has been participatory. The success of any program relies on how much it reflects the concerns and ideas of the target group, as well as how much it reinforces positive cultural and community values and behaviors.

As a Volunteer, your role is often that of a catalyst and/or obtaining and organizing host agency interest and participation. You and your counterpart are likely to conduct tasks such as: approaching a funding agency; arranging meetings among different agencies; or organizing a personnel training workshop.

You must implement the plan in a way that helps to ensure the program's long-term viability. The following practices have been found to promote successful and sustainable environmental education programs:

- 1. Prepare an action plan** of the work that has to be done to implement the project. Document the tasks that need to be accomplished (e.g., fund-raising, signing interagency agreements, arranging project logistics), and a timeline for accomplishing tasks. Be sure to include any seasonal considerations (e.g., what needs to be accomplished prior to the onset of the rainy season?), and/or reporting requirements (e.g., when do budgets have to be submitted by the partner agency?).
- 2. Think of your action plan as a living document!** Your initial action plan will provide only a rough guide, and you should approach the implementation timeline with a good measure of flexibility. As you proceed with the program, any number of events might occur that hinder or halt the program's progress. For example, perhaps you didn't consider how the rainy season affected school schedules, or one of the most vocal and enthusiastic community educators is called away to fulfill other obligations. To accommodate new realities, you, your counterpart, and other involved community members should meet regularly to discuss changed circumstances and, if necessary, make adjustments to the action plan.





- 3. Create sustainability whenever possible.** In-country resources should be relied upon for financing, personnel, and equipment. Although it may be tempting to rely on foreign sources of funding, as well as easier to acquire them, in-country resources are likely to be more sustainable and more easily accessed by the local population in the long run.

When searching for funding sources, determine how often outside funding will be needed. Large foreign donor agencies may be able to provide some money to get a project started, but they probably will not provide funds on a regular basis. A project that requires ongoing funding should seek resources within the community. Explore options with the community. There are a number of small, but effective, fund-raising activities that Volunteers have found to be useful. Selling tickets to dances, raffles and contests have been successful money making activities, as have making and selling t-shirts, soap, baked goods, posters, and various handicrafts. The more invested in a project, and the more all aspects of that project occur within the community, the more committed participants will be to the project's success.

- 4. Encourage participation by the host country agency** that is responsible for implementing the education project. Seek to involve representatives of these organizations in a variety of ways, and keep them informed of the project's progress. Invite them to workshops or to observe education sessions, and involve them when any significant changes take place.

## REMINDER!

One of the greatest challenges that many Volunteers face is achieving a high level of community and host agency involvement and commitment. The impulse for many Volunteers is to "just do it themselves." Although initially easier, this approach is ultimately counterproductive, and is likely to result in a program's failure. To increase the chances that the program will have a lasting effect, and continue after your departure, community members and host country agencies must be thoroughly involved from the start.





5. Identify the project as a host country agency project, rather than a Peace Corps or foreign development project. Written materials, for example, should name the host agency, not Peace Corps, as the main publisher. Local press and television coverage of the project should identify the host country agency as the project’s sponsor. Involving the host agency in this way can significantly increase their commitment to making the project a success.

### MACHHA BAZAR

You have a meeting with the park ranger to discuss what his objectives for the media campaign are, and what behaviors he wants to see by visitors. You discussed having a big kickoff event for the media campaign. The ranger suggests trying out one of the regulatory signs before the kickoff, just to see how it is received. He wants to know if the signs will be ignored or vandalized. The two of you work on the wording of the sign and plan to put it up within the month, depending on Ministry approval.



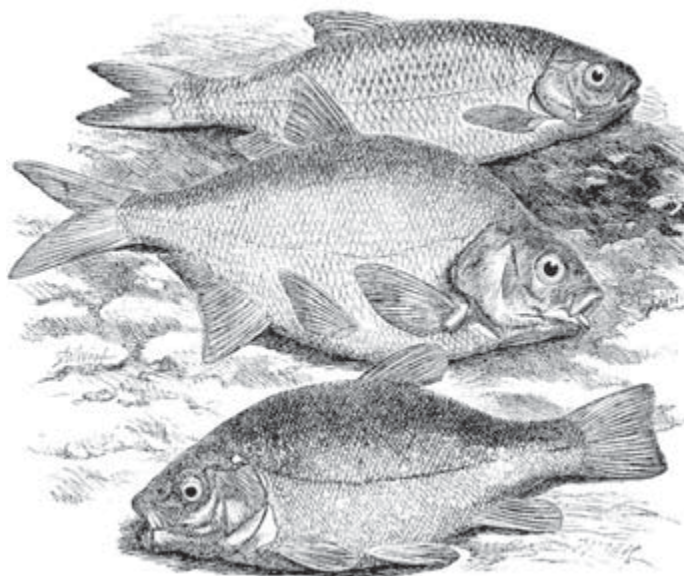
#### Environmental Education Plan for Machha Bazar

Activity	Target Group	Message	Strategies	Implementation	Evaluation
Class	students and teachers	<ul style="list-style-type: none"> <li>relationship of humans to environment</li> <li>environmental aspects of school curriculum</li> </ul>	<ul style="list-style-type: none"> <li>Teach one class/week using interactive approaches and incorporate local field study</li> </ul>	Weekly <ul style="list-style-type: none"> <li>Volunteer and teacher</li> </ul>	
Eco-club in school	students and teachers	<ul style="list-style-type: none"> <li>observation</li> <li>local natural history</li> </ul>	<ul style="list-style-type: none"> <li>Club meets one afternoon/week for field based EE</li> </ul>	Weekly <ul style="list-style-type: none"> <li>Counterpart and Volunteer</li> </ul>	
Fishermen’s advisory group	fishermen – advisory group	<ul style="list-style-type: none"> <li>fish ecology</li> <li>specific concerns of fishermen</li> </ul>	<ul style="list-style-type: none"> <li>Gather info</li> <li>Description of service</li> <li>Call organizational meeting</li> <li>Meetings</li> <li>Develop plan</li> </ul>	<ul style="list-style-type: none"> <li>Month 1 by RC staff and Volunteer</li> <li>Month 2: chair RC manager</li> <li>* Monthly; elected chair</li> </ul>	
Environmental education for the park	general public; maybe poachers	<ul style="list-style-type: none"> <li>ecological information about park</li> <li>park rules</li> </ul>	<ul style="list-style-type: none"> <li>Interpretative signs</li> <li>Brochures and posters</li> <li>Kickoff event</li> <li>Radio spots</li> </ul>	<ul style="list-style-type: none"> <li>Contact ranger to develop plan</li> <li>Interpretive signs</li> <li>Brochures and posters</li> <li>Kickoff event</li> <li>Radio spots</li> </ul>	



## IMPLEMENTATION CHECKLIST

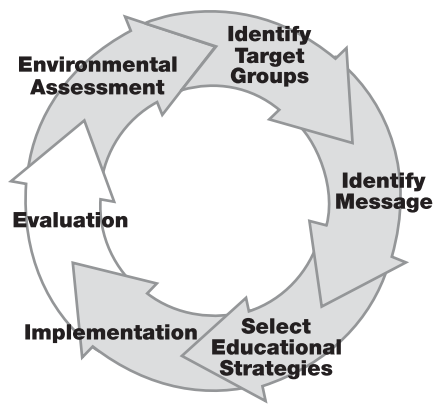
- What tasks need to be done to implement the project?
- What is the timeline for completing tasks?
- Which tasks will the host country agency and community members do, and which will you or other outside development workers do?
- In what ways will the host country agency be involved?
- What sources of funding are available? How can funding occur within the community, and within the country? What “in-kind” resources are available? How will funding and the acquisition of other resources be accomplished over the long term?
- What is the level of commitment among host country agencies and community members? What are your reasons for this perception? How can the level of commitment be increased, if necessary? Is there a sense of community ownership for the project?





## CHAPTER SEVEN

# MONITORING AND EVALUATION

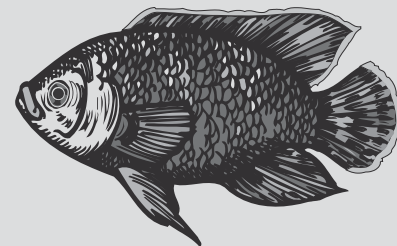


Monitoring and evaluation are critical, but often neglected, parts of any successful environmental education program. **Monitoring** is a systematic and ongoing effort to collect and analyze information to learn if a program is achieving the desired results. Carrying out periodic assessments while a program is in progress allows you and your counterpart to make mid-program changes and improve its effectiveness.

**Evaluation** takes place at a specific point in the program, such as mid-program, to verify that a program is on track; any time there are significant issues or changes that affect the program’s goals and objectives; and at the end of the program.

### MACHHA BAZAR

Throughout your planning, you wonder if the plan that you and your colleagues created will result in a successful program. Will students learn? Will fishermen conduct organized environmental activities that result in positive change? Will the new signs convey knowledge to park visitors? Will poachers change their behaviors?



The next questions are: How will you know if you succeed? What are the indications that success has been achieved? How will you know if the program is not going well and what changes need to be made to improve it?

The monitoring and evaluation process can also benefit from the perspectives of others. This is especially true with program-end evaluations, which are generally done with the assistance of an external evaluator. Understandably, people are often reluctant to have their “performance” assessed. Properly done, however, program monitoring and evaluation can help you, your counterpart, and others to assess your program’s effectiveness and to better accomplish the goals of the program.

For more a more detailed explanation of Monitoring and Evaluation, please refer to the Peace Corps’ publication *Programming and Training Booklet 4: How to Assess a Project* [ICE No. T0116].

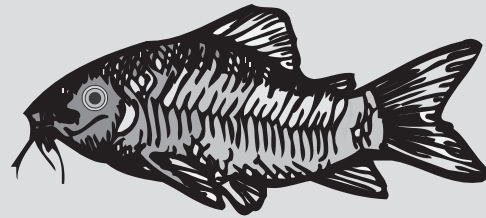




## MACHHA BAZAR

You consider creating a multiple choice answer test to evaluate how well the students have learned the material. This would be easy to grade and would help you see what the kids did not learn well – but how can you tell what the students really know and what they were simply able to guess right? It might be helpful to know what the kids DID learn, so you plan an activity that you think will be more engaging than the pencil and paper test. The students will create a big mural of ecosystems, and each student will be asked to draw a biome with all its parts. You can tell how well they learned about biomes by the detail in the drawing. Also, if you have the time, you might reinforce some of the information that kids may have missed—as evidenced by any missing pieces of the biomes they create.

You decide that Eco-Club students can demonstrate their knowledge by participating in a community project, like making a walking trail. You also institute an ongoing monitoring system where students demonstrate their learning by giving feedback at the end of each meeting.



In order to find out if the signs are helping park visitors behave properly, you must first define proper behavior. You, your counterpart, and the park ranger define a list of behaviors to assess: picking up trash, staying on trails, being respectful around animals by not getting close or disturbing them, and being respectful to plants by not vandalizing them.



As a group, the fishermen have defined two objectives: to give advice on an education program that aims to inform the public about the importance of, and how to protect, fish resources, and to offer advice on fishing policy to governmental organizations. In order for this to happen in a constructive way, the fishermen’s advisory group needs to function with a high degree of organization and decide how to make and convey decisions. You, your counterpart, and the newly formed advisory group decide to hold several meetings to confirm these details. Therefore, your immediate gauge of success should focus on the organizational and logistical functions of the group: Do the fishermen define a decision-making process? Does everyone on the panel participate, and are a number of views represented? Does the group meet regularly? Does the group define goals? Has the group organized itself in a way that is satisfactory to all members?







## GUIDELINES FOR EFFECTIVE MONITORING AND EVALUATION

The ultimate goal for environmental education programs is to improve attitudes and behavior towards the environment. While it may be several years before a program's effect becomes evident, progress toward a program's goal can be regularly monitored from the beginning.

Monitoring and evaluation involve several principal steps, which include:

- Review the program's intended goals and objectives;
- Review the program's indicators;
- Collect and analyze data; and
- Interpret and use the results.



### Review the program's intended goals and objectives

The first step in effective monitoring and evaluation is to clearly identify the program's intended goals and objectives. Obviously, it is impossible to determine how successfully a program has achieved its desired outcomes unless its goals and objectives are clearly stated. Are the goals relatively broad, brief and measurable? Do the objectives meet the SMART criteria, i.e., are they specific, measurable, attainable, relevant, and time-bound?

### Review the program's indicators:

After reviewing the intended goals and objectives, it is important to make sure that the indicators, or the markers that show progress and help measure change, are relevant, specific, measurable and feasible. Have people acquired new knowledge, attitudes and skills? Are people changing their behavior? If not, why not? Are there social, cultural, or economic circumstances that prohibit or hinder the new practices, which weren't addressed by the EE program? Are farmers willing and able to plow on a contour? Do they operate insecticide application equipment correctly? Are they planting trees on the hillside? Do coastal dwellers understand the value of the mangrove swamp, and are they able to preserve them? Are they able to stop harvesting sea turtle eggs recklessly?

### Collect and analyze data:

Once you have reviewed a project's goals, objectives and indicators, it is important to review your sources of data, and how you are collecting that data.

Getting accurate data that demonstrates people's knowledge and attitudes before and after the program will be a challenge. It is relatively easy to determine whether people have learned the material, but more difficult to determine why they are behaving as they are. Formal questionnaires and controlled interviews can provide accurate information, but may be difficult to administer. People may be taken aback when a relaxed and friendly educator suddenly confronts them with paper, pencil and formal questions. Informal data gathering, on the other hand, will probably be more feasible, but will generally produce less precise data.



It always helps to highlight the need for monitoring and evaluation from the earliest stages of a program's development. During a teaching session, for instance, you can ask questions to see if participants understand the material. Or, if teaching manual skills, ask participants to demonstrate them. Listening and asking questions as part of normal conversation can also reveal much that people are thinking. Keep in mind, however, that people often say what they think evaluators want to hear.

## Interpret and use the results

One of the biggest challenges of monitoring and evaluation is analyzing and then applying what you have learned to your work. What does it all mean, and how can you respond to what you have learned?

### Common challenges

If the intended audience has failed to grasp the information being conveyed in the activity, and/or they have failed to put this new knowledge into practice, it may be because:

1. They have not received the message – e.g., they do not listen to a radio or read the newspapers where the message has been communicated;
2. They have not understood the message – e.g., the message was written and they cannot read, or it was conveyed in a complicated manner;
3. They do not believe the message because it is either inconsistent with their established beliefs and customs, or they do not trust the educator or the agency he or she represents;
4. They do not feel they have any reasonable alternatives; or
5. The message was poorly communicated, misdirected, or faulty—e.g., educators didn't use appropriate methodologies to convey the message, didn't communicate the message to the appropriate target group, misidentified the actions or attitudes that have led to environmental problems, and/or misunderstood the behavior that caused the environmental problem.



For example, although people may appreciate the ecological value of mangroves, they may continue to clear-cut wood because they require firewood. In this case, the message of the program would have to be paired with viable alternatives for cooking and heating needs.

It is also possible that some people's attitudes may have changed because of the educational effort, but these people were not the ones affecting the resource. In this case, the target audience was misidentified. A wildlife educational program presented in the capital city's newspaper may be ineffective if the people hunting wildlife are nomads in the country's interior.



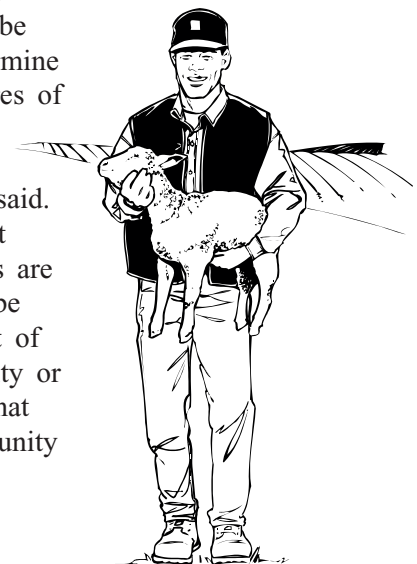
### Keep expectations realistic

Attitude and behavior change does not happen overnight. Rather, it is an ongoing process that occurs over a long period of time, and occurs as people slowly change their perceptions. Often, personal behavior change (e.g., trying something new) is perceived as risky. Farmers, for example, cannot afford to make mistakes, and so they depend on tried and true methods. Asking them to change behavior that they know has yielded at least some success is also asking them to risk the welfare of their family. Plowing a field differently or planting trees on their land may be profitable, or it may be devastating. In this case, you might try to convince farmers to devote a small portion of their holdings to this new method, or you might try to elicit interest through the use of a demonstration plot.

The continuum presented on page 55, illustrating the level of awareness and motivation of target audiences, can assist in evaluating a program's progress. If people are not aware a problem exists, it would be unrealistic to expect a program to have immediate results in changing behavior. Helping people move through the various stages is the role of an environmental education program, and how effectively it does this is a measurement of its success.

Almost assuredly, it will not be possible at the beginning of a program to predict how long it will take to affect people's behavior, or how many people will need to change their behavior for a program to be considered a success. You and your counterparts will have to determine this as you proceed through the program, and establish the measures of success that are appropriate for your specific program.

It is crucial that educators listen to what is said, and what is not said. Educators from outside the community are likely to miss important clues as to why a certain behavior occurs if too many assumptions are made. Initially, the reasons for behaving in certain ways may not be apparent, and will not be explained. Misunderstandings on the part of educators often arise, and may result in a program based in a faulty or incomplete understanding of why a behavior occurs. It is crucial that educators listen carefully, engage in extensive dialogue with community members and counterparts, and involve community members at all stages of program development to avoid any misunderstanding.





## KEY QUESTIONS

If people are not using the measures advocated by the education program, ask yourself the following questions and consider the possible solutions:

● **Has the message been clearly communicated? How do you know?**

If you find that the message has not been received, review the educational methods to see if the message has reached the intended audiences. Who came to the teaching sessions? Who listened to the radio programs? Who read the series of newspaper articles or saw the posters delivering the message?

**Possible Solution:** *An adjustment in education method. Find creative, innovative ways of presenting the message.*

● **Is the message appropriate to the circumstances? How do you know?**

If you find that people have not understood the message, ask the people to answer questions that indicate their understanding of the material.

**Possible Solution:** *An adjustment in how the content is presented. Try to find locally appropriate means for presenting information.*

● **Does the target group believe the message?**

If people do not believe the message because it is inconsistent with their beliefs and traditions, ask counterparts, close friends, or the people being educated if relevant customs and beliefs have been neglected.

**Possible Solutions:**

1. *An adjustment in how the program's content is presented;*
2. *an adjustment in the program's technical solution; or*
3. *additional time for people to become accustomed to message.*





- If you find that the educator is not trusted, talk to counterparts or close friends about solutions.

*Possible Solution: Time or a change in approach.*

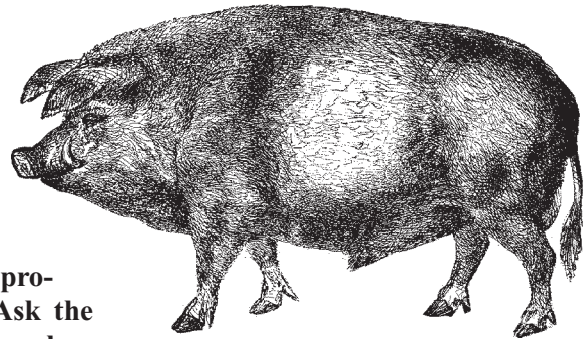
- If the program material is understood, but behavior change has not occurred:

**Is there is a lack of concern about the environmental problem?**

*Possible Solution: Develop activities to raise awareness of the problem's relevance to their own lives.*

**Does social pressure exist? Do influential people distrust or not believe the educational program's message?**

*Possible Solution: Inclusion of group applying social pressure as a target audience of the educational program.*



**Are the actions advocated by the education program unrealistic or economically unsound? Ask the people you have been trying to educate if they have doubts about the effectiveness of the measures advocated by the education program.**

*Possible Solution: An adjustment of the technical solution to be sure it is locally appropriate and feasible.*

**Are people nervous about the consequences of changing behavior? Have you been able to discount other possible reasons for the lack of implementing the education program's measures but still sense a general reluctance?**

**Possible Solution:**

1. *More time;*
2. *Concentration of educational efforts on community leaders;*
3. *Change in education methods, perhaps including demonstrations or field trips to sites where actions being advocated by the educational effort are being used successfully; or*
4. *Financial or other incentives to encourage people to take chances on changing their behavior (e.g., payment for planting trees or tax incentives for leaving land fallow or implementing soil conservation techniques).*

- If people are implementing the measures advocated by the program, but the condition of the environment has not changed, is it because:

**The technical solution advocated by the program is inappropriate? What do outside experts say? What do community members and local experts say?**

*Possible Solution: An adjustment in the program's technical solution.*





The people whose behavior has changed are not those affecting the natural resources in question? Who has the education program reached? Are they the people affecting the environment?

**Possible Solution:** *An adjustment in the program's target audience.*

More time is needed to evaluate the situation? The effects of changing certain environmental practices often appear gradually.

**Possible Solution:** *Find ways to measure incremental progress toward achieving goals.*



## MACHHA BAZAR

After the two pilot lessons you and your counterpart taught and observed, you have a better idea of how the students will behave and what they already know. You are glad that you did the pilot, because you will now revise the lessons you were going to use in the school and the Eco-Club. In two weeks, you will start teaching in the school and facilitating the Eco-Club.

The sign at the park has had mixed results. The ranger has been asked what it means several times, so the wording needs to be adjusted. He is pleased that when people do understand what it is saying, they are willing to comply. Some people have said that the poachers won't like it, but the ranger's superiors have said they will support him, and help him enforce the regulations. Overall, it has been positive and he wants to move forward with the preparation of the other media.



The fishermen have formed their advisory group and are now working to establish by-laws and a workplan. Overall, because you and your counterpart did a thorough job in laying the groundwork for forming the advisory group, and most individuals feel like their views are fairly represented, you think that the advisory group is in a good position to make sound judgments and to achieve positive

change. However, you and your counterpart sense that there is potential for decision making to stagnate, so you suggest to the group that you all work on participatory decision making. You and your counterpart schedule a two-day workshop to train the fishermen in skills and processes for participatory decision making.



### Environmental Education Plan for Machha Bazar

Activity	Target Group	Message	Strategies	Implementation	Evaluation
Class	students and teachers	<ul style="list-style-type: none"> <li>relationship of humans to environment</li> <li>environmental aspects of school curriculum</li> </ul>	<ul style="list-style-type: none"> <li>Teach one class/week using inter-active approaches and incorporate local field study</li> </ul>	Weekly <ul style="list-style-type: none"> <li>Volunteer and teacher</li> </ul>	<ul style="list-style-type: none"> <li>Classroom assessment</li> </ul>
Eco-club in school	students and teachers	<ul style="list-style-type: none"> <li>observation</li> <li>local natural history</li> </ul>	<ul style="list-style-type: none"> <li>Club meets one afternoon/week for field based EE</li> </ul>	Weekly <ul style="list-style-type: none"> <li>Counterpart and Volunteer</li> </ul>	<ul style="list-style-type: none"> <li>Attendance, participation and closing activity</li> </ul>
Fishermen's advisory group	fishermen – advisory group	<ul style="list-style-type: none"> <li>fish ecology</li> <li>specific concerns of fishermen</li> </ul>	<ul style="list-style-type: none"> <li>Gather info</li> <li>Description of service</li> <li>Call organizational meeting</li> <li>Meetings</li> <li>Develop plan</li> </ul>	<ul style="list-style-type: none"> <li>Month 1 by RC staff and Volunteer</li> <li>Month 2: chair RC manager</li> <li>Monthly; elected chair</li> </ul>	<ul style="list-style-type: none"> <li>Attendance</li> <li>Satisfaction with members</li> <li>List of topics</li> </ul>
Environmental education for the park	general public; maybe poachers	<ul style="list-style-type: none"> <li>ecological information about park</li> <li>park rules</li> </ul>	<ul style="list-style-type: none"> <li>Interpretative signs</li> <li>Brochures and posters</li> <li>Kickoff event</li> <li>Radio spots</li> </ul>	<ul style="list-style-type: none"> <li>Contact ranger to develop plan</li> <li>Interpretive signs</li> <li>Brochures and posters</li> </ul>	<ul style="list-style-type: none"> <li>List of visitor behaviors</li> <li>Draft language for media</li> </ul>

