The Natural Resource Management Analytical Framework: A Training Workshop

Katie Carruth

Follow this and additional works at: https://scholarworks.umass.edu/cie_capstones

Part of the Education Commons

Retrieved from https://scholarworks.umass.edu/cie_capstones/167
The Natural Resource Management Analytical Framework: A Training Workshop

Katie Carruth
Spring 1996
Dr. Robert Miltz
Contents

Preliminary materials
- Executive summary
- Timeline
- Pre-course questionnaire
- Module evaluation

Module 1 Introduction
- Pretest of regenerative natural resource management
- Introductions
- Expectations: Hopes, fears and contributions
- Overview
- Establishing ground rules

Module 2 Natural Resource Management
- What is natural resource management?
- Recycling natural resources
- Soil respiration
- Understanding soil structure
- Healthy soil and NRM
- Video: Looking After our Land (OXFAM)
- Defining natural resource management

Module 3 Natural Resource Management Analytical Framework
- Natural Resource Management Analytical Framework introduction
- Enabling conditions
- Ranking
- Case studies

Module 4A People as Resources: Mystery
- Riddles
- Truth or confusion
- Learning roles
- Does or is
- The 24-hour day
- Barrier to production
- Social construction of roles

Module 4B Extension Approaches
- Observation
- What is wrong with this picture?
- Do's and Don'ts
- Asking questions
- Effective extension role-play
- Using the framework
- Extension experiences

Module 5 Site visit
- Preparing for the site visit/discussion
- Making a plan
- Implementing the plan
Module 6 Assessment
- Site visit evaluation/ discussion
- Post-test

Additional handouts and supplemental readings
- Asking questions
- Interview protocol
- The semi-structured interview
- Natural resource management and gender analysis
- What do the facts mean?
- Country profiles
Preliminary materials
- Executive summary
- Timeline
- Pre-course questionnaire
- Module evaluation
Executive Summary

The Africa Bureau of the United States Agency for International Development is promoting the use of an analytical framework to be used in implementing and evaluating projects in natural resource management (NRM). The framework is a simple tool to be used by program managers and extension technicians to anticipate and plan for considerations that impact natural resource management. Unanticipated factors (i.e. socioeconomic, sociopolitical or biophysical) repeatedly account for the failure of NRM projects. The framework will allow researchers to learn from the farmers perspective what the obstacles are, how they can be overcome by the farmer and finally to arrive at policy recommendations.

Regenerative natural resources management optimizes food production and addresses the economic needs of the farmer while maintaining the long-term balance and capacity for renewal of an agricultural system. Soil is central to RNRM and serves as a viability indicator for any agricultural intervention, such as the interaction of livestock, plant use and planting practices.

The framework is designed to illustrate the if-then relationship between actions, results and impacts. A better understanding of actions, results and impacts on the part of natural resource managements will lead to a better understanding of regenerative NRM. The framework will also improve communication between farmers and field workers through appropriate conversational techniques, i.e. open ended questions. Use of the framework necessitates a dialogue between farmers and extension workers and encourages a participatory approach.

The training design is for a ten-day workshop that will be offered for extension workers. The extension worker is assumed to have completed roughly two years of technical training beyond a bacalooeat. The curriculum is mean to be applicable to any geographic or ecological zone. The curriculum is divided into modules which can be adapted as needed. These modules are:

Part 1: Introduction includes: • Workshop purpose, • self assessment, • meeting participants, • establishing ground rules.

Part 2: Defining regenerative natural resource management includes: • Defining NRM, • resource cycling, • healthy soil, • comparing NRM strategies, • past trends in NRM and • successful participatory NRM projects.

Part 3: Understanding the analytical framework includes: • the purpose of the framework, • defining the elements, • analyzing constraints and enabling conditions, • applying the framework.

Part 4: Extension approaches includes: • effective vs. ineffective extension, • women and NRM, • designing questions, • a participatory approach to the framework, • selecting villagers to work with.

Part 5: Applying the framework/site visit includes: • applying the framework under work conditions.

Part 6: Site visit assessment: • analyzing the site visit, • a post-test needs assessment, • final evaluation.

The workshop will be conducted by trainers possessing advanced degrees in soil science, agronomy or a related subject, with experience in participatory research in the developing world and a working knowledge of, and experience in, regenerative agriculture. The trainer participant ratio should be 1:7 maximum. Optimal attendance is twenty participants. It is required that the gender mix be half women and half men. Participants may be self selected or selected by their employers. The required gender mix is meant to create a balance of gender concerns in the workshop, and provide a voice for women’s concerns and issues in NRM.
The focus of the workshop is not specific RNRM interventions, rather how to evaluate the constraints and enabling conditions that impact any given intervention. The training techniques use in the workshop indirectly teach the participants how to work in a more participatory way with farmers. Some of these methods include:

- Allow the participants to set the rules, thus giving them a stake in the workshop.
- Needs assessment prior (and post).
- Small and large discussion groups.
- Media such as slide shows and videos.
- Site visit.
- Case studies.
- Actual work situations for illustrative purposes.
- Evaluation throughout the workshop to assess learning progress.
- Printed material to emphasize key points.
- Role play, humor.
- Field demonstrations to illustrate key concepts.

Most of the training will be conducted at a training site, with a two day site visit. During the site visit the participants conduct village meetings for the purpose of completing the framework in relation to their own on-going activities and honing their extension skills.

A self-assessment test will be conducted before and after the workshop. Evaluations will be completed at the end of each day. The workshop will be conducted with a level of flexibility that permits a response to the suggestions of the participants.
<table>
<thead>
<tr>
<th>Day 6</th>
<th>Day 7</th>
<th>Day 8</th>
<th>Day 9</th>
<th>Day 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 5</td>
<td>site visit</td>
<td>site visit</td>
<td>site visit</td>
<td>assessment of site visit</td>
</tr>
<tr>
<td>site visit</td>
<td>develop</td>
<td>workplan for site visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>preparation for site visit</td>
<td>site visit</td>
<td>site visit</td>
<td></td>
<td>Post test evaluation of workshop</td>
</tr>
</tbody>
</table>
Pre-course questionnaire

Name

Job

Organization

Have you ever attended a course on Natural Resource Management? What?

What do you hope to get out of this training?

What are the main issues concerning natural resource management that relate to your development work?

Do you have any restrictions that allow you to participate fully in this workshop?

• diet:
• facilities:

Please return to:
Module Evaluation
Please answer the following questions:

For each activity in this unit, please write down what you like disliked and what you would recommend doing differently. Then score the activity in terms of how useful you found it to be. Score the activity on a scale of 1 to 5, with 5 being the most useful and 1 being the least.

INTRODUCTION

<table>
<thead>
<tr>
<th>Pretest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liked</td>
</tr>
<tr>
<td>Disliked</td>
</tr>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Score</td>
</tr>
</tbody>
</table>

Hopes and Fears

<table>
<thead>
<tr>
<th>Liked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disliked</td>
</tr>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Score</td>
</tr>
</tbody>
</table>

Overview

<table>
<thead>
<tr>
<th>Liked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disliked</td>
</tr>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Score</td>
</tr>
<tr>
<td>Groundrules</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Liked</td>
</tr>
<tr>
<td>Disliked</td>
</tr>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Score</td>
</tr>
</tbody>
</table>
Module 1
Introduction

- Pretest of regenerative natural resource management
- Introductions
- Expectations: Hopes, fears and contributions
- Overview
- Establishing ground rules
Activity 1: Pretest of Regenerative Natural Resource Management

Purpose: To assess participants understanding of NRM and basic concepts of regenerative agriculture.

Time: 1 hour

Materials: 20 copies of pre-test, pens or pencils.

Facilitator welcomes participants and briefly explains that they will conduct a pre-test to enable the facilitators to assess the needs of the participants and their understanding of some of the subjects that the workshop will be addressing.

Distribute the pretest. If there are any questions about the material in the test, explain that the purpose of the test is to assess their understanding of the subject matter and that they can jot down questions about what they don't understand, or leave the question blank. There are no right or wrong answers and the tests are anonymous.

After the tests are completed the facilitator will collect the tests and review them later the same day. It is important that the results of the pre-test are considered before proceeding with the workshop.
Pre-Test
Please provide one sentence answers for the following questions.
Please be ready to discuss your responses with the group

1. What is natural resource management (NRM)?

2. What is healthy soil?

3. In your opinion, what are (is) the key aspects of effective extension?
   3.a. Briefly explain your answers.

4. Rank the following in terms of importance in relation to an agricultural project (1 to 5, most important to least important).
   a. Agronomic conditions
   b. Economic conditions
   c. Social conditions
   d. Political conditions
   e. Historical conditions
   4.a. Briefly explain your choice.

5. Which of the following are enabling conditions?
   a. access to credit
   b. adequate rainfall
   c. available time
   d. availability of seed
   e. information about agriculture

6. What is the best explanation of an impact?
   a. a change in a biophysical condition
   b. a change in socioeconomic status
   c. a change in perception
   d. a change in practice

7. Describe the ways in which nutrients enter and leave an agricultural system:
   Ways that nutrients enter a system:
   1.
   2.
   3.
Ways that nutrients leave a system
1.
2.
3.

8. How have you evaluated the success of an agricultural project in the past?

9. For a system to be sustainable which of the following answers is most correct?
   a. there are many nutrients entering the system.
   b. there must be as few nutrients as possible leaving the system.
   c. Farmers must be getting the highest yields possible.
   d. There is a reliable supply of the best fertilizers and farmers are well trained in applying them.
   e. Nutrients in the system are optimally managed with as few nutrients as possible leaving the system.
   f. Farmers are using the most technologically advanced methods available.
Activity 2: Participants Introduction  
**Purpose:** For participants to know who other participants are; to start creating a communal atmosphere for the purpose of participatory learning.  
**Time:** 1 1/2 hours  
**Materials:** 20 pencils and sheets of paper, a prize (mug, T-shirt, hat etc.)  
**Note:** This exercise will be repeated at the community level.

The facilitator will instruct the group to divide themselves into pairs. The groups are to take turns interviewing each other. Have the facilitators pair up with a participant and take part in the interviews as well.

The interviewer is to identify three pieces of information that they find most interesting about the other person. They should not ask, "tell me three interesting things about yourself," rather the interviewer is to decide what is interesting.

After all participants have been interviewed (20 minutes), the group will reconvene and each participant will introduce their interviewee, sharing the information they have gathered in the interview until all participants have been introduced.

After the introductions have been made, the facilitator will ask each participant to devise one question for any member of the group working from the information they have just learned. Participants will take turns systematically present one question to another participant until everyone has asked a question. The responses will be kept brief, not longer than a few minutes, but enough for the group to put the "interesting facts" that they have learned into context so that they may be able to pursue a more in depth discussion at another time.

For example, one participant might ask: Participant X, you said that speak Russian, Portuguese and Hawaiian- how did you come to learn these three languages?

Or: "Participant Y, you said that you are interested in genetic engineering, what place do you think this has in agriculture today?"

Or: "Participant Z, you have travelled the farthest to be here, did anything exciting happen on the trip?"

Or: "Participant N, you said that you have also worked with literacy training, do you think that literacy needs to be a part of agricultural extension work? Why, or why not?"

After all have taken a turn at asking a question, the facilitators will award a prize to the participant who shared the most interesting/bizarre/funny information. One facilitator can make the
decision as to who should win and present the prize, so that it is done quickly and spontaneously.
Activity 3: Expectations: Hopes, fears, contributions

Purpose: To allow participants to express any feelings that might inhibit their active participation in the workshop; To enable the facilitators to adapt the program if necessary; and to encourage participation, open communication and understanding.

Materials: flip charts, markers

Time: 50 min

1. Have participants break into groups of 4-5. Give each group a flip chart and a marker. Ask them to first list their hopes for the workshop, any fears they might have, and lastly what contributions they bring to the workshop (20 min).

2. Have the groups reconvene and put their lists on the wall. Have each group report their results, all groups first addressing hopes, then repeat the order addressing fears, then contributions. (20 min)

3. Facilitators react to lists in terms of what they have planned or not planned to address, bearing in mind what they can add or subtract. Facilitators need to respond satisfactorily to hopes and fears.

4. Post a revised list of the workshop agenda and the topics facilitators plan to address. (10 min)
Activity 4: Overview
Purpose: To review the workshop agenda and review precisely what objectives the workshop will focus on.
Time: 30 minutes
Materials: Overview handout, i.e. timetable.
Note: All participants will have received the agenda well in advance of the workshop.

Facilitators reiterate the workshop purpose, objectives and an outline of the workshop. Also discuss how the workshop will rely on participatory methodologies, which means the success of the workshop relies on participants contributing their experiences and perspectives. And perhaps most importantly, a willingness to learn from other people in the group as well as from the facilitators. Discussion and debate are highly encouraged.

Remind participants that the facilitators will evaluate the workshop in terms of how interactive methods are used by participants both on-site and off-site.
Activity 5: Establishing ground rules of the workshop.
Purpose: To present a series of ground rules that the group will collectively revise and then agree to adhere to for the duration of the workshop.
Time: 45 min.
Materials: Flip chart, marker, workshop ground rules handout.

The facilitator explains to the participants that they will be instrumental in deciding how the workshop will proceed in that they will determine, by consensus, the ground rules of the workshop. The facilitator explains that often such "rules" of operation are taken for granted, such as participants will treat each other with respect, or will not interrupt each other. The group will take an existing list and adapt it to suit their own needs, so that they all have the same set of assumptions about how to proceed.

A list has been written up, and it is for the group to decide which of the rules they wish to keep, discard or add. The facilitator will copy the list on a flip chart. The group will go through the list item by item and add, subtract, and revise as they see fit. The facilitator will record the changes on the flip chart. After the list and discussion has been exhausted - at the end of the session - the facilitator will print up copies of the revised list and distribute them to the participants as soon as possible. Post a large and legible copy of the list in a visible place, and refer back to it as needed. Point out that it is the shared responsibility of the participants to point out when others are violating the list, but most importantly people should consider their own behavior first and foremost.
Workshop Ground Rules

Participants (and facilitators) agree to:

• arrive at sessions on time
• not interrupt the person who is speaking
• not "grandstand," or monopolize the discussion for long periods of time.
• make criticism constructive and helpful, offer suggestions for improvement if you are pointing out a flaw.
• voice doubts/concerns as they are raised.
• address input/concerns as they are raised.
• actively contribute to the sessions, share experiences, insights and knowledge.
• treat each other as equals, i.e. value all experience.
• be prepared to think about extension in new ways.
• be willing to take risks and try new things.
• try to learn as a group, and as individuals.
• do not accept what you do not understand.
• be ready to learn from each other.
• accept responsibility for helping to make the workshop a success.
Module 2
Natural Resource Management

- What is natural resource management?
- Recycling natural resources
- Soil respiration
- Understanding soil structure
- Healthy soil and NRM
- Video: Looking After our Land (OXFAM)
- Defining natural resource management
Module 2 Activities
Activity 1: What is regenerative natural resource management (RNRM)?
Brainstorming.

Purpose: To familiarize participants with the concept of natural resource management in terms of farming systems, and the interconnectedness of resources.

Time: 1.5 hours
Materials: flip chart, marker.

Facilitator will lead a brainstorming session on farm systems, followed by discussion.
1. Facilitator will ask participants to visualize a farm.

2. Ask the group to think of what types of physical resources exist on this farm. List the categories of resources, such as crops, water, labor, land, vegetation. These are the category headings that you will elaborate on. For each heading, ask the group to brainstorm on specific resources that fall under these broader categories, such as WATER: rainfall, well water, river water etc. LIVESTOCK: goats, sheep, camels, cows, chickens etc. If you wish, you can arrange these lists on the paper in columns in a circular pattern. This may help you to demonstrate the connections between the resources visually later on.

For example:

LIVESTOCK

WATER          CROPS

VEGETATION     SOIL AMENDMENTS

LABOR
3. Facilitator will ask the question, 'how are these resources used in conjunction with other resources on the farm?' As the group answers, draw lines connecting the different columns. As one resource connects with a second, how does the second connect with a third? For example: Water supports livestock, which provide manure- a soil amendment for field crops. Or non-crop vegetation may serve as fodder for the livestock, the livestock may contribute labor (animal traction) to crop production. Using suggestions from participants the facilitator will illustrate the interconnectedness of the resources. Demonstrate how one given resource can have an impact on, or be critical to, the health of many different resources.

4. Brainstorm on the elements of commonly used (or uncommon) management systems. For example: fodder banks, cattle fattening, recycling crop residues, animal traction, intercropping, IPM etc.

5. Select four elements to optimize within a management system. Ask individuals to contribute these four responses.

6. Have the individuals explain why they chose these elements. (3 minutes maximum each)

7. Discuss how resources on a farm form a complex web of relationships. Some of the linkages are evident, others only become apparent after a resource is lost, or a management pattern altered. Ask participants for examples of how they have seen this happen in their own experience, either anticipated and unanticipated impacts of change on resource distribution. Ask for volunteers to briefly describe such situations and the impacts.

For example, if a farmers wants to add vegetation to his/her farm, what will be the impact on the people (in terms of necessary conditions and potential impacts), or on livestock, the soil, or water in terms of rain? Possible responses include: the livestock will have gained a fodder sources..., the soil will have gained a protective cover from wind and water erosion..., and more water will be retained by the soil with the vegetation to slow and collect the runoff, etc.
Activity 2: Recycling natural resources.
Purpose: to examine different NRM systems in terms of resource cycling, to help participants think in terms of patterns of nutrient cycling that apply across systems.
Time: 45 min.
Materials: slide projector, slides of slide frame 1, prizes (as many prizes as there are slides.)

Facilitator will show a series of slides of different NRM systems. With each slide the following three questions are superimposed on the slide.
1. what resources exist in the system,
2. what resources are leaving and
3. what are being brought in?

With each slide ask for a volunteer to give a brief summary of the nutrient cycling process depicted, and to offer a possible way of improving the system, (such as a sustainable technology that could be implemented.) For each slide, ask the group for their reaction to the technology suggested.
Facilitators should be more concerned with the quality of the discussion, rather than with getting through every single slide in the allocated time. If the group has interesting and novel ideas, explore the implications and constraints, but also keep the exercise moving forward.

The slides are of:
• clear cutting forests
• cultivating peanuts in Senegal
• growing fodder for livestock in Asia
• agroforestry for dune stabilization
• livestock
• Intercropping velvet bean (legume) with traditional crops in Guatemala
• aquaculture with ducks
• terracing
• mulching legumes
• terraced rice cultivation
• burning crop residues in Senegal
• composting in Senegal

At the end of the session, award prizes to the individual(s) who presented the best (most thoughtful) overview and recommendation for the system depicted in the slide.
Activity 3: Soil respiration
Purpose: To show that the addition of fresh organic matter stimulates microbial activity by demonstrating increased respiration; to help participants think of soil as a living thing - the implication being that it, like other living things, must be cared for.
Time: 45 min, plus at least 1 hr. advance preparation. It is suggested that you try the experiment well before the presentation as practice.

Materials:
1) Two empty coffee tins with the bottoms cut off, with the plastic lids
2) two large (5 gallon) buckets; one 30% filled will a poor, clay soil-low in organic material, the other 30% filled with soil high in organic material (manure has been incorporated within the past 24 hours). Add water to the healthy soil 12-16 hours before the experiment to promote microbial growth.
3) two 0.1% CO2 detection tubes (draeger tubes)
4) four syringe needles
5) two lengths of flexible latex tubing (6-7" of .25" diameter),
6) draeger tube end remover.
7) 4 rubber septas


Preparation: This experiment takes an hour to indicate a response, therefore, the facilitator must prepare the buckets one hour ahead of time. The steps can be replicated during a method demonstration. For the best results use very poor soil (high clay) and very healthy soil (add compost).

The facilitator will walk through the following steps while (or then) discussing the material below, i.e. soil as a living thing, and healthy soil. After the facilitator has completed the experiment and the discussion, open up the session for questions.

A tin is inserted into the soil in each of the buckets. Two holes are made in each of the plastic lids, a septa is inserted into each hole forming a seal. The plastic covers with the septas are put on each of the tins, and the time noted. One hour later the experiment can be presented....

The facilitator presents the two buckets of soil (with the covered, nested containers), one high in organic material, the other low in organic material. The facilitator explains that the experiment is to demonstrate soil respiration. If the purpose were to obtain actual data, the soil used would have to be undisturbed and the bottomless can would be placed directly into the soil in the field. For the purpose of demonstration, the buckets represent undisturbed soil.

The facilitator explains that the tins have been covered for one hour to allow time for the collection of respiration. The facilitator takes a draeger tube and removes both of the ends with the draeger tube end remover. Explain that the
off of soil reserves. Most importantly, chemicals do not create an environment conducive for living organisms. Soil must be considered a living breathing resource to be nourished and replenished. A balance between taking from, and contributing to the soil is critical to the long-term sustainability of any agricultural system. For the plant to be healthy and productive, the soil must be healthy and productive.
Activity 4: Understanding soil structure.
Purpose: To demonstrate the concepts of soil structure, water-holding capacity, and infiltration rate in soil low in organic matter versus soil rich in organic matter.
Time: 45 minutes
Materials: A soil sieve; four one liter cylinders; a bucket of poor, preferably clay soil; a bucket of healthy soil, such as silty clay loam, rich in organic materials (compost will illustrate this point well); water.
Preparation: The facilitators must complete the procedure 24 hours before presenting the demonstration in order to achieve the desired results. During the demonstration the facilitator repeats the steps of the process.

The facilitators will go through the steps of the experiment, explaining the material below about soil structure and characteristics of healthy and poor soil. After the presentation, open the session up to questions.

Explaining as they proceed, the facilitator will take a quantity by weight (enough to fill each of the containers 1/2 full) of each of the soils and separately sift them. Putting aside the aggregates, the facilitator will put the sifted soils into the cylinders; the poor soil in one, the healthy soil in another. Presenting the cylinders of soil, the facilitator will point out the color difference.
1) The poor soil is light in color, indicating poor organic matter content.
2) The other sample is a dark color, indicating rich organic matter content.

The facilitator will then pour water (.25 l) into each of the cylinders, and permit the water to start to filter through the soil. During this time the facilitator will explain that soils low in organic material generally have a poor soil structure (Jonathon will elaborate on this) they also have poor water-holding capacity. Poor water-holding capacity effects the potential of the soil to support vegetation, or reduces the variety of vegetation that can be supported. Discussion, further explanation.

The facilitator presents the cylinders that have been allowed to sit for 24 hours. The cylinder with the poor soil will show that:
1) Most of the water has slowly filtered through the soil throughout the column, and will eventually puddle at the bottom. Little has been retained by the soil at the different layers. This indicates poor water holding capacity.
2) The soil has settled at a certain height in the tube. It is lower than the rich soil, indicating a higher density and a tendency to compact.

The cylinder with the healthy soil will show that:
1) Less of the water has filtered to the bottom of the tube, more is being held in throughout the column and is thus more available to vegetation. This soil has better infiltration.
2) The soil is higher in the tube than the poor soil. It has compacted less than the poor soil because it has a better structure due to the organic matter content and a lower bulk density.

The facilitator will summarize saying that the organic material, which has been proven to support living organism, is critical to the structure of the soil, as has been illustrated. **Soil organic matter provides:**
- better water infiltration and water retention
- better soil structure
- lower bulk density and reduced compaction.
- Healthy soil will retain H2O in its pore spaces. Poor soil has less capacity to retain H2O and the potential for runoff is increased.
- as was show in the previous experiment, organic matter supports microbial life.

Discussion. Are participants convinced? if not, why? Encourage participants to voice their reactions to the information that they are being given- positive or negative. Can they think of soil as a living thing? Are they dubious? What are people thinking about chemical inputs such as fertilizers and pesticides?
Activity 5: Why is healthy soil central to RNRM?
Purpose: To illustrate how soil is critical to NRM, using a variety of agricultural systems; to consider the positive and negative implications that different NRM systems have on the soil.
Time: 1 hour
Materials: flip chart, copies of handout matrix- one for each participant

Participants will receive a copy of handout matrix. The facilitator will present a series of slides depicting different soil management techniques. The facilitator will pause for 5-10 minutes on each one, allowing the participants to complete the form according to the information presented in each slide. After a short time for completing the forms, ask people to share their responses and discuss scores.

Activity 5 slides depict:
- contour dikes
- livestock for tillage
- hillside terraces
- dune stabilization
- planting legumes
- agroforestry
- vegetative bunds
Matrix
For each activity, score the practice depicted on the slide in terms of the impact that it has on the resources listed. Score using, "-" for a negative impact, "0" for a neutral impact, and "+" for a positive impact.

<table>
<thead>
<tr>
<th>PRACTICE</th>
<th>SOIL</th>
<th>WATER</th>
<th>VEGETATION</th>
<th>LIVESTOCK</th>
<th>PEOPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• contour dikes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• livestock for tillage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• hillside terraces</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• dune stabilization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• planting legumes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• agroforestry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• vegetative bunds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Activity 6: Viewing of the video "Looking after our land", OXFAM/IIED
Time: 2 hours
Materials: video player, TV, the video "Looking after our land"

The group will view the film, which is a presentation of NRM practices being implemented in Kenya, Burkina Faso and Mali. The focus of the film is indigenous NRM techniques.

Following the viewing, the group will discuss the film among themselves (15 min). Afterwards the facilitator will ask: what were the strengths/weaknesses of the techniques presented, given the circumstances, and the development approach? Discussion.
Activity 7: Defining RNRM
Purpose: To come up with a common working definition of regenerative natural resource management; to consider what the term and the process involve.
Time: 1 hour
Materials: flip charts, markers, several copies of the attached list of words.

Given the common understanding of RNRM that the group has from the previous activities and the knowledge that they brought to the workshop, the group will generate a working definition of RNRM. The purpose of the exercise is not to identify a single correct definition, but to get a better idea of what the definition involves, what considerations are important.

Participants will return to small groups of five each. Each group will be given a copy of the list of words. They are instructed to take 30 minutes to develop a working definition of regenerative natural resource management, keeping in mind the following rules:
1. They are to use as many of the words on the list as possible
2. No sentence should be longer than eleven words
3. and there should be no more than seven sentences.

After thirty minutes the group will come together and present their definitions.

Then facilitator will post their own definition and the group will systematically compare and contrast their definitions with the facilitators. Discussion. (30 minutes)
Module 3
Natural Resource Management Analytical Framework

- Natural Resource Management Analytical Framework introduction
- Enabling conditions
- Ranking
- Case studies
Module 3, Activity 1
Natural Resource Management Analytic Framework
Purpose: To familiarize participants with the purpose and function of the NRMAF.
Time: 1 hour
Materials: Copies of the NRMAF, one for each participant, one copy of each of the problem situations to hand out.

The facilitators will make a 20 minute presentation on the NRMAF, explaining:
- the purpose
- how it works
- the elements that comprise it
- definitions of the terms used
- the steps involved in the process
- the relationship between the steps
- why it can be a useful tool
- how it can be useful for extension workers
- why the framework important for communication between farmers and extension workers
- how farmers will benefit from it's use

Small group work. (40 minutes)
The group will break up into groups of five each.
Each group will be assigned one of several hypothetical problems to address in a community. For each problem the group is to choose a regenerative agricultural technology that they think would be appropriate for addressing the problem, and then use the NRMAF to do an initial assessment of the technology and the hypothetical conditions that would be involved. You can use any technology that you wish as long as you do a critical assessment of what is involved.
The facilitator will distribute an assignment to each group. The groups will process the information (25 minutes) and then reconvene to discuss their results, and any problems they may have encountered (15 minutes).
The challenge of the exercise is that the group is working without a clear-cut environmental situation, but they must consider what could be important in any given situation. A rigorous assessment could determine that the proposed technology is not a good idea.
Problem situations.
Distribute one problem to each group.

1) Farmers are no longer able to purchase soil amendments due to discontinuance of government subsidies for chemical inputs. Farmers are very nervous because their yields were declining even before the subsidies were cut- they will try anything.

2) Livestock get into the communal garden and trample and eat the vegetables. The village is frustrated and is ready to give up gardening because they don't have the resources to buy a metal fence.

3) The village nutritional status is poor, but there is insufficient water for most vegetable crops. How might an agriculturalist respond to the nutrition problem?

4) In this particular village the women never come to meetings - the area is very deforested. The men report that the women are gathering firewood and don't have time for meetings.

5) A development agency distributed goats among the poorest families in the village. The development agency then lost their funding and is not there to follow up on the project. Vegetation is scarce, the goats look awful. The families are very worried because they lack the resources to feed the goats and they never got the chance to learn how because the project fell apart so quickly.

6) The men in the village grow a big crop of vegetables every year. But the market is 40 kilometers away and they have no reliable transportation. The kids have been very healthy in this village since they have been growing vegetables. The village is not poor, but the men want some extra cash.

7) The hot winds are damaging the field crops and the problem seems to keep getting worse every year. The well-being of the village is suffering in many ways. The village is ready to take action.

8) Fallow periods are continually being shortened in the maize/bean production system because there is pressure to produce food, but not enough time to let the land regenerate for as long as is necessary. Farmers want chemical fertilizers to help them get the yields that they used to get.

9) Most farmers in this village cultivate on fairly steep slopes (15%), but yields are declining because the topsoil is being washed away. The don't have any other land to cultivate and no rocks to build stone barriers.
Why the framework?
The purpose of the framework is to assist the users take into account the conditions and consider­ations that may effect the introduction, implementation or the outcome of a given technology before it is introduced. The framework is intended to identify what may be a problem before it becomes a problem, and to identify what conditions must be in place for the technology in question to become a reality. It is meant to be used at all stages of a project, from conception, to design, to implementa­tion. The purpose is not to "get all the right answers" or in other words to have the completed frame­work portray an idealized project, but to anticipate and intercept problems before they occur and become costly mistakes.

How does it work?
Completion of the framework requires the cooperative efforts of farmers, extension workers and researchers. It makes it necessary for all parties to share information and work together to determine 1) what is the problem, 2) what is the appropriate solution, and 3) how to implement that solution. The framework walks the user through a thought process that addresses, problem, goal, proposed solution, necessary enabling conditions, indicators of change. This process is done through five steps that are as follows:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1: What is the problem that is being addressed as perceived by the farmer, researcher, extension, organizational levels?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2: What is the goal that you wish to achieve, as agreed upon by all parties?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: What is the proposed solution, technology, innovation, or land use management practice for achieving the goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4: What conditions must be in place so that the farmer can/will adopt X technology?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: What parameters can you measure to determine, or indicate whether X technology is having a impact, making a change? For example:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PARAMETERS**= what resources can be measured

<table>
<thead>
<tr>
<th>Land/Soil</th>
<th>Vegetation</th>
<th>Waters</th>
<th>Fauna</th>
<th>Climate</th>
<th>Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>erosion rate</td>
<td>biomass/ha</td>
<td>runoff rate</td>
<td>cattle routes</td>
<td>———</td>
<td>Land tenure</td>
</tr>
<tr>
<td>fertility forage quality</td>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
</tr>
</tbody>
</table>

*and how* can those parameters be measured?

**INDICATORS of parameters**=how can those resources be measured

<table>
<thead>
<tr>
<th>Land/Soil</th>
<th>Vegetation</th>
<th>Waters</th>
<th>Fauna</th>
<th>Climate</th>
<th>Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>erosion rate</td>
<td>biomass/ha</td>
<td>runoff rate</td>
<td>cattle routes</td>
<td>———</td>
<td>nutrition</td>
</tr>
<tr>
<td>fertility forage quality</td>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
</tr>
</tbody>
</table>

The different stages are related, for example: IF X technology, THEN X,Y,Z parameters will change, or IF compost is implemented, THEN soil quality will improve. Soil quality can be measured through changes in crop yields, water retention, compaction, nutrient content, etc. The **relationship** between the levels is, If INPUTS then OUTPUTS then PURPOSE then GOAL
The logic behind the framework addresses the following issues in the order that they appear.

**Problem:** what is the NRM problem that has been identified by farmers, extension workers and researchers as a priority to be addressed?

For example, **erosion**, caused by wind and water. The soil lacks a vegetative cover and as a result the wind and rains carry away large quantities of topsoil, and with it nutrients. Large gullies are forming in the fields- taking large portions of land out of production. With less land under cultivation, yields are declining. Family food security is being compromised.

**Goal:** What have farmers, extension workers, researchers and supporting organizations agreed is the purpose of the project, over a given time?

To reduce soil erosion and as a result increase crop yields and increase family food security.

**Proposed Solutions:** the technology, land use management practice, or innovation that will permit farmers to achieve the goal, which is agreeable to all parties involved.  

The use of soil improving legumes as an intercrop with millet- which is the staple crop for the village.

**Enabling conditions:** What conditions must be in place so that farmers will adopt X technology?

These are some conditions to consider before integrating a soil improving legume as an intercrop in the cropping system

<table>
<thead>
<tr>
<th>CONDITIONS</th>
<th>social</th>
<th>political</th>
<th>economic</th>
<th>agronomic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>time and labor</td>
<td>incentives for</td>
<td>need</td>
<td>Available seed</td>
</tr>
<tr>
<td></td>
<td>knowledge/understanding</td>
<td>investing in soil</td>
<td>resources for inputs</td>
<td>appropriate legume</td>
</tr>
<tr>
<td></td>
<td>technical support</td>
<td>freedom to experiment</td>
<td></td>
<td>means of assessment</td>
</tr>
<tr>
<td></td>
<td>desire for technology</td>
<td>regulations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Impacts:** What parameters are indicative of technology X making a change, either positive or negative? Each of the parameters identified should be explored at length:

social  political  economic  agronomic

How can these parameters be measured? For example, agronomic conditions can be measured by indicators that include among others: vegetation, soil and water. How can these indicators be measured?

**Agronomic Indicators/How to Measure Them**

| Vegetation: | crop yields, legume plant biomass, legume nutrient content, |
| soil:       | compaction, nutrient content, water holding capacity, tithe, soil organic matter content, coverage |
| Water:      | runoff-(quantity), |
Apply the logic of the natural resource management framework to the following hypothetical situation. Complete the steps of the process based on what you know would be likely considerations in implementing the assigned technology.

Problem:

Goal:

Proposed Solution:

Enabling conditions:

<table>
<thead>
<tr>
<th>CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>social</td>
</tr>
<tr>
<td>political</td>
</tr>
<tr>
<td>economic</td>
</tr>
<tr>
<td>agronomic</td>
</tr>
</tbody>
</table>

Impacts: What parameters are indicative of technology X making a change, either positive or negative? Each of the parameters identified should be explored at length:

<table>
<thead>
<tr>
<th>IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>social</td>
</tr>
<tr>
<td>political</td>
</tr>
<tr>
<td>economic</td>
</tr>
<tr>
<td>agronomic</td>
</tr>
</tbody>
</table>

How can these parameters be measured? What indicators can be used?

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>HOW TO MEASURE THEM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Handout
The Framework: Terminology
The analytical framework is an organizational tool that makes it easier to see if and how any given technology is affecting selected situational factors, such as social, political, economic or environmental considerations. It provides a visual overview/explanation that allows the user to anticipate and monitor impacts on the selected considerations. With this information, the user can adjust their plans and approach in response to the feedback that the framework provides. It teaches the user to be aware of anticipated and unanticipated changes that may come about and use this information to increase the likelihood of success of development efforts. Evaluation becomes an on-going process, integral to the project.
Below are definitions of the elements that comprise the framework.

Goal: A general statement of what the project is trying to accomplish overall, within a given time frame.

Objectives: The specific achievements/activities through which the goal is accomplished.

Indicators: Parameters to measure that reveal what is important in a project, change that is directly or indirectly related to the project. The parameters measured are a function of the project (yield, labor required in terms of time, livestock production).
- indicators must be specific i.e. in terms of quantity, location, time,
- indicators must be objectively verifiable.
- parameters must be considered independently of one another,

Long-term goals: The lasting changes that a given project seeks to make.

Expected outcomes: The anticipated changes that are the result of the specific objectives or planned activities.

Results: Results are perceived changes in the parameters. Results lead to impacts. Example: as a result of using compost the condition of the soil is improved.

Impacts: The related changes that occur because of changing conditions. Example: The impact of using compost is increased yields of the crops, due to the improved quality of the soil.

Enabling conditions: The necessary and sufficient conditions (socio-political, economic, environmental) needed to accomplish the objective. These conditions are assumptions and can entail varying degrees of risk, i.e. average rainfall, political stability.
Activity 2: Enabling Conditions
Purpose: To further explain the concepts of constraints and enabling conditions, a key part of the analytical framework; to consider three NRM situations in terms of the conditions that work for or against the desired situation depicted in the photo.
Time: 1 1/2 hour
Materials: flip chart, marker, a slide, slide projector, handouts.

The facilitator will present three sets of slides depicting different NRM situations. Each set will be presented in the context of the diagram structure explained below.
First the facilitator will explain the diagram of the handout by duplicating it on the flip chart.
Following the diagram place an example photo of the "present" agricultural situation on the far left. Write the word "NOW" above the picture, explain that this is the present situation you are dealing with. On the far right place an example photo of the situation you wish to achieve. Write the word "FUTURE" above that photo. Draw a line connecting the two photos. Above the line draw slanted arrows that lead from the "NOW" to the "FUTURE". Below the line draw slanted arrows that lead from the "FUTURE" to the "NOW" picture.
Explain that the purpose of the exercise is to explore how to get from the "NOW" situation to the "FUTURE". The lines on the bottom represent things that would make it difficult to achieve the "FUTURE" situation, these are constraints and they pull the situation back to the "NOW". Write the word "CONSTRAINTS" by the arrows on the bottom. Explain that the arrows on the top of the line represent enabling conditions, or conditions that would help to move forward to the "FUTURE". Write the word "ENABLING CONDITIONS" above these arrows. These are conditions that facilitate progress towards the desired goal.

Divide the participants into three groups.
Give each of the three groups a pair of photos to work with, and a sample of the diagram. Ask that they evaluate the situation as a group. They are to meet, discuss and answer the following questions in regards to the NRM situations depicted in the photos
a. what is wrong in the "NOW" situation?
b. define in words the desired situation depicted in the "FUTURE"
c. what are the constraints and what are the enabling conditions to achieving the "FUTURE". List.
d. chose one constraint and plan how to overcome it.
45 min.
Reconvene, have the groups share their results, comment on and critique each others plans, 45 min.
### Constraints and Enabling Conditions

Enabling Conditions: what is necessary for change?

<table>
<thead>
<tr>
<th>Present Situation</th>
<th>Agronomic</th>
<th>Social</th>
<th>Economic</th>
<th>Political</th>
<th>Desired Situation</th>
</tr>
</thead>
</table>

Constraints: what impedes change?

*fill in the top boxes with enabling conditions and the bottom boxes with constraints, according to the categories listed above*

**Questions:**

- What is wrong with the present situation?
- What is desired in terms of the situation that you wish to achieve?
- What condition effect each of the criteria listed, in terms of enabling conditions, in terms of constraints.
Activity 3

Ranking

Purpose: To prioritize elements in any decision making process. This exercise works best with five or less options.

Time: 45 minutes

Materials: a flipchart and marker, or a board and chalk to write on.

The group determines what the five most important items of any category are (i.e. health problems, vegetables, storage problems etc.)

For example, The group is determining what they need in a cover crop and has decided that the following strengths are important to them. They will assess the order of importance of the following characteristics in selecting a cover crop for their use:

1. heat tolerance
2. drought tolerance
3. self seeding
4. biomass production
5. pest resistant

1. The facilitator will set up a matrix. For the matrix the traits will be listed on both the left and across the bottom.
2. The facilitator will systematically ask the group to compare all of the elements listed. In the cells that comprise the grid, the group will indicate what they think is the more important characteristic of the two that intersect.
3. For each pair the facilitator will ask the group which they think is more important, and why.
4. As below, heat resistance was noted to be more important than disease resistance, and the group indicated that biomass production is more important to them than heat resistance.

4. After the matrix is complete, count how many times each item appeared and list these in order.

The traits they think are important in a cover crop are:

| heat tolerance | | |
|----------------|----------------|
| drought tolerance | drought |
| self seeding | heat | drought |
| biomass production | biomass | drought | biomass |
| disease resistant | heat | drought | seeding | biomass |
| | heat | drought | self seeding | biomass | disease resistant |
the next step is to count how many times each trait is selected
drought 4
biomass 3
heat 2
self seeding 1
disease resistance 0

The scores, or the number of times that an element is selected indicates the priority ranking.

Symbols can be used instead of writing, so that non literates are equally included
Activity 4: Case studies
Purpose: To apply the framework to two case study situations; to become more familiar with the structure of the analytical framework and the type of information needed.
Time: 2 hours
Materials: Copies of the Majaii Valley case study and the compost case study (so that each participant gets one or the other - have equal numbers of both), blank copies of the framework (1 for each participant), one overhead of the blank framework, an overhead projector, two large versions of the framework copied on flip chart paper.

The two case studies will be used as practice for completing the framework. Ask the group to divide themselves into two and select a facilitator. Give copies of the compost case study, and blank copies of the framework to one group, and copies of the Majaii case study and copies of the framework to all members of the other group. Each group is to read the case study, and then complete the framework using the information in the case studies. A program facilitator will sit in on each group to elaborate on the framework process, should any questions arise. After the framework is complete, each group should list any additional information that might help them to better assess the situation, (45 minutes). If possible, have each participant contribute one suggestion for needed information.

Afterward have the groups reconvene and present what they have done, any problems they may have encountered, and other information that they would seek if they were to continue with the projects. What is their reaction to the framework?
Discussion.
Case study exercise

Village case study
The technology to be introduced is composting. Using the information provided complete the framework to determine if composting could be an appropriate technology for this village.
What additional information do you need? List.

Majaii Case study
Use the framework to evaluate the introduction of windbreaks as an appropriate technology in the Majaii Valley.
What additional information do you need? List

Is the framework helpful in assessing these two situations? How?
The Majaii Valley Windbreak Project, A Case Study

Background Information: Niger • Size 1.29 million K², mostly desert • Population 7 million • Annual income $240 • Average life expectancy 44 years • Rainy season June to December, average rainfall of 400-600 mm • Temperatures reach 45-50°C and some areas go without rain for years • soils alluvial.

The Project: In 1974, in response to farmers complaints about erosion, a Peace Corps volunteer and the NGO CARE initiated a windbreak project in the Majaii Valley of Niger. The goal was to increase food security by building Neem (Azadirachta indica) windbreaks and stabilizing dunes, to decrease soil moisture loss and plant damage by wind.

The Majaii Valley in the South of Niger is the only area of Niger fit for rainfed agriculture. It is a sedimentary plateau at an altitude of 300-400 meters, cut by a series of valleys running North-South, one of which is the Majaii Valley. The plateau is overgrazed and suffers from erosion and land degradation. Water tables are at a depth of 4-15 meters throughout the year. Cultivation is intense. Millet is the primary food crop. Sorghum, cotton tobacco watermelon and tomatoes are also grown. Dry season gardening uses hand dug well. Because of population growth, fallow periods have been shortened and some area is under continuous cultivation. Most men leave the valley to find work during the dry season.

Most of the inhabitants are Hausa farmers. Tuareg herders pass through. The herders provide milk, meat and dung in exchange for grain and fodder from the farmers. Tuaregs sometimes herd the Hausa's animals.

Initially the project provided all inputs, made all project decisions and paid workers through food-for-work. The project hired guards to protect the seedlings. By the end of 1988, over 4,600 ha of windbreak were planted, dunes were stabilized, free seedlings distributed, and woodlots planted for pole production, shade or fruit.

Design: The windbreaks run the width of the valley and are 2K long. They consist of a double row of trees at 4x4m spacing, staggered with 100 m between row spacing. The project decides the location of the windbreaks; they may cut right through a farmers field. A mature windbreak can mean loss of crop production by an estimated 17%.

Livestock were found to browse the trees to a height of 2m, creating a jet of wind, potential crop damage and accelerated erosion. To avoid this problem the neem was alternated with rows of Acacia nilotica. Impact studies revealed that average wind speed was reduced 42% and relative humidity increased. Yields in protected areas were 23% higher than outside.

Wood harvesting was unexpected primary benefit of the project. Crop value from one K of a 10 year old windbreak was estimated at 900 poles and 12 cubic meters of firewood, valued at US$1,200 and US$107 respectively. Subsequent harvests were expected to decline to US$720.

Surveys showed the participants listed lack of rain, wind and water erosion as the top three problems. 90% felt the windbreaks were beneficial but only 2% thought the windbreaks belonged to them rather than the Forestry Department.

Economics: It was estimated that established windbreaks would increase grain yields by 7.8% compared to unprotected fields, assuming a four year harvest with staggered cuttings. The results show that the benefits exceed
costs. However, a World Bank study showed that the project might be negatively impacting livestock production.

The lack of identification of local people with the project threatens the sustainability of the project. The project decided that the windbreaks should be communally owned and a cooperative has been established to manage the windbreaks. All adults residence are cooperative members. The cooperative obtained FCFA1 million (US$3,300) from the 1988 wood harvest and has invested in a new shop, the first in the valley. The project is exploring ways of transferring ownership. However the cooperative is still very dependent on the project. Farmers don't think they can plant by themselves, "we don't know how to plant in straight lines". And there is still the issue of windbreaks going through farmers fields. Some farmers are being trained in nursery management and more of the planting is being left up to farmers.

Results: Windbreaks have had a moderate effect on crop yields, the main benefit is pole production. A new concern is that the water table may be dropping because of the trees.

Project staff agree that the original focus on windbreaks was too narrow. Research has shown that trees dispersed in fields are as effective as windbreaks, researchers are encouraging the traditional practice of growing *Acacia albida* on cropland.
Compost Case Study

Instructions
The technology to be introduced is composting. Use the information provided to complete the framework. Assess how appropriate composting is for this village, under the given conditions.

1. What additional information do you need?
   (keep this list for use at a later time)

Village case study

The Sahelian village of _____ has a population of 700, and is 40K from the departmental capitol. The village is close to the edge of the advancing Sahara, but is able to grow enough food to support itself. The people are of an agrarian tradition and are extremely hard working and eager to improve their farming techniques.

The soils are (?red and ?) and the area is largely deforested. Erosion is a problem; gullies are forming in the fields- taking areas out of production are creating waterways that exacerbate the problem. Average annual rainfall is 500mm.

There is no auto transportation out of the village, but many villagers own horses or donkeys as well as goats and cattle. Families pen their animals at night. Manure is collected but is largely unused.

Villagers cultivate millet, mostly for their own consumption. Crop residues are left in the fields after harvest. Women in the village own land and cultivate field crops. The boy children work in the fields of their fathers, and girl children work in the fields of their mothers. Parents can purchase the labor of opposite sex children i.e. a mother can pay her son to come work in her fields.

During the rains, the women grow wild rice in flooded areas. The entire village grows vegetables in a two hectare fenced-in communal garden; men, women, families and the village school all have their own gardens.

Two cement wells in the communal garden provide the village with water for drinking and for gardening. During the dry season, well water is sometimes limited for family consumption. On the outskirts of the village is an older cement well, but the water is salty and not fit for drinking. This well is used to water livestock, by the village and passing herders. When the garden wells get very low in the dry season, villagers use traditional unlined wells outside the village. These wells are close enough to the garden to be used for watering the garden when necessary.

Seed is purchased at the departmental capitol. The villagers (mostly the men) also sell vegetables there. The local extension service provides some chemical pesticides and a small amount of fertilizers but does not visit regularly. The men in the village apply fresh manure (including horse manure) to their vegetable plots, on top- but not incorporated into -the soil. The consumption of vegetables contributes greatly to the health of the villagers. This general good health is visible.
Module 4A
People as Resources: Mystery

- Riddles
- Truth or confusion
- Learning roles
- Does or is
- The 24-hour day
- Barrier to production
- Social construction of roles
Module 4a: People as Resources: Mystery

The purpose of the following exercises is to help participants gain an awareness of the impact that our conceptions of gender have on our work and on our lives. Participants will come away with the understanding that gender is essentially something that we create—not behavioral characteristics that we are born with.

Natural resource management is inseparable from gender, because of the gendered division of labor that characterizes it, i.e. women gather the firewood, land rights are often passed on to men, women fetch water, etc. Understanding the social roles men and women play is necessary in implementing any development project. Understanding that these are merely roles opens the potential for much more.

None of the following exercises will be introduced to the group as "gender exercises," to avoid any predispositions that people might have towards the subject.
Activity 1a: Riddles
Purpose: To make participants move around; to start participants voicing their thoughts about gender; to help participants begin to be aware of some of their own gender biases.
Materials: The list of statements below.
Time: 30 min.

Ask the participants to break into two groups equal sized groups, and then form two circle, one within the other. Have each circle move in the opposite direction- one moving clockwise and the other moving counterclockwise. After a few seconds ask them to stop and face the person standing opposite them in the other circle. The facilitator will read a statement and one participant will give their response to their partner, the the partner will take a turn at responding to the same question. After each has had a chance to respond, have the inside circle take a step to the left so that they are facing the person next to their previous partner. The facilitator reads another statement and the participants repeat the response procedure. Continue until all of the statements have been responded to.
Facilitators can choose from the list below, as many questions as you wish to ask, but probably not more than seven. The responses will not be processed in this exercise.
Statements:

- Men are hard to work with because they are not reliable.
- It makes sense to work with women farmers because they have access to more resources.
- The people that are most concerned about the division of labor and resources are men, so it is not really a problem, because it’s only men.
- Man and women can never be equal because they are biologically different.
- To discuss ways that men and women are the same is to cause problems in the family.
- Agricultural development does not need to be concerned with the roles of men and women.
- Men should be employed in NGO’s because they are more efficient.
- If you want something typed, give it to a man to do.
- Women are considered more valuable farm workers than men.
- It is more important to have a daughter than a son.
- Women are more serious than men.
- It is more important for a girl child to get an education than a boy child.
- Most farmers are men.
- It is important for women to make the big decisions in the family.
- It is women’s job to fetch water because they are stronger and they have more time on their hands.
- Natural resource management projects do not need to think about helping women because women can help themselves.
- Women have a better understanding of natural resource management than men.
- Women have more power than men.
- Men don’t really need extra money, their wives give them what they need.
- If women have extra money they prefer to spend the money on getting their hair done or buying themselves clothes.
- If you have a nice Toyota pickup, you are really better off having a woman drive it than a man.
- If you are going to work with women in the field, hire a woman and let her take care of it, men don’t really need to be concerned.
- One thing that you do want is a woman overseeing important projects, particularly managing the money.
- Men have more free time than women because women like to be busy.
Activity 1b: Truth or Confusion?
Purpose: to allow participants to air their views about the statements that they have just responded to and thus reveal their beliefs and biases about gender.
Time: 45 min.
Materials: paper, markers.

In groups of four have participants discuss how they felt about the exercise. The facilitator explains to the group that in discussing their responses it is important to be honest about what they think, that there are no wrong answers. Each group will discuss and write down their reactions to the exercise. (20 minutes)

The groups will reconvene and share their responses. It is the responsibility of the facilitator to guide these presentations and to encourage discussion. **Most importantly** the facilitator needs to be looking for gender biases that are revealed in the responses, and to question these responses for the purpose of having the respondent explore the beliefs that underlie the biases that they hold to be true. (25 minutes)

**Humor**
Many of the questions are so contrary to social norms that they may seem funny, but if participants find them funny, this is an opportunity for the facilitator to explore why they are funny. This can be done by simply asking a series of open ended questions.

For example: If in responding someone indicates that they realize that the exercise was about men and women and what they do, and that the roles were generally reversed in the questions- but obviously it would never be a good idea to let a woman drive a pick-up (laugh).

Facilitator: Well, why not?
Participant: Because it is the man’s job to drive!
Facilitator: Why?
Participant: Because that is the way it is done!
Facilitator: Why?
Participant: Women probably have more accidents, they are always sort of half paying attention anyway.
Facilitator: Do women have more accidents?
Participant: I don’t know
Facilitator: Then why did you say that?
Participant: Just a guess.
Facilitator: What would happen if a woman drove the pick-up? (explore the consequences)
Participant: She would not know how.
Facilitator: What if you taught her?
Participant: Women are not good at that kind of thing, it would not be a good idea.
Facilitator: You don't even know this woman, but you are deciding what she is good at and not good at based on her sex, is that right? Or do you have another reason? So what exactly is it about a woman's physical or mental capabilities that makes it a bad idea to put her behind the wheel of a truck?

Pursue a line of reasoning to the extent that the bias is clear. Emphasis should be on how we are all taught norms and roles, we are taught to believe that men and women have different strengths, thus making this less of an attack on the individuals holding the beliefs, but more of a realization that our thinking is constrained by these learned roles, and that really there are many more options in terms of what men and women can do.

Gender differences are cultural, they are learned, and thus can be changed.
Activity 1c: Learning Roles
Purpose: To think about how we learn that men are women are different, what they should or should not do.
Time: 50 minutes
Materials: Flip charts and markers

In the same groups of four that were formed for the previous exercise have the groups discuss the following questions that will be posted (10 minutes each):

• How did you learn how to be a boy or girl when you were young?
• Do you remember being discouraged from doing something that you should not do because you were a boy or a girl? Briefly, how was this done?
• Who or what did the message come from? List the sources.
• What does this have to do with natural resource management?

Allow the groups to discuss and note their responses. After 30 minutes have the groups reconvene and share the results of their discussion, they can have one person present the list— but don’t discourage other team members from elaborating when the rest of the participants want to hear more (20 minutes).
Does Versus Is
Activity 2: Gender interpretations on roles and activities of men and women
Purpose: To enable participants to be aware of their own impressions (biases) of men and women; to start looking at roles and stereotypes in a non-confrontational way.
Time: 45 min.
Materials: markers, flip chart

(10 min)
1. before session facilitator prepares quiz on newsprint
2. Facilitator explains that we are going to do a quiz and that:
   a. it is not a test of gender awareness
   b. there are no right or wrong answers
   c. answers will be confidential
   d. first impressions are requires, don't deliberate about answers

(20-25 min.) 3. hand out the quiz, each person completes the quiz as quickly as possible.
4. shuffle the quizzes and redistribute them making sure that nobody gets their own quiz back.
5. Ask group to raise hands for answers to quiz, giving the answer from the quiz that they have in front of them, not their own answer.
6. Discuss agreements (ask why all or most saw men or women in certain activities)
7. Discuss disagreements (ask why some thought an activity to be male, while others thought it to be female).

(10 min.) 8. Briefly discuss roles and stereotypes, point out that we are all aware of gender stereotypes even though we know that they are not true.
During the discussion be aware of the following considerations.

1. Assumptions that the group is working with, such as the assumption that men carry the heavy loads, but women carry water. Note and point out the perceived difference between roles and activities.

2. The role of the farmer versus the farming activities in which women are strongly represented. Why are more men than women considered farmers (land ownership)?

3. Who is thought to do the sewing in the house, but what sex is usually thought of as the tailor?

4. Housewives are thought of as women, but who does the budgeting and planning? Discuss invisible work, work that women do but are not acknowledged for.

5. How are similar activities interpreted differently when they are done by men or women? Ex. men (serious speeches) and women (irrelevant gossip).

6. The head of household is usually seen as the man (provider), but housewife (who does much of the work) is seen as the woman.

7. Some chores, cooking, cleaning, are almost universally done by women and are thus seen as women's duty.

8. Some words have a male connotation, farmer, tailor etc. but these activities are very much done by women.
Gender Interpretations Quiz sheet:
This is not a test of gender awareness, or a test at all. It is a way of looking at our first thoughts about people's roles and activities. Your answers will be confidential, we will be looking at the group response rather than individual answers.
Please indicate whether you think the following activities are done by men or women. Don't give the answer a lot of thought, we want your first response. If you don't know the answer, or can't decide, leave the answer blank and go on to the next one.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Male</th>
<th>Female</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>carrying heavy things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>operating machinery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cooking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>selling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>talking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lighting a fire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>budgeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making decisions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fetching water</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing religious rituals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working in the fields</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing medical care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assisting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gossip</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Role</th>
<th>Male</th>
<th>Female</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housewife</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tailor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leader</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accountant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Politician</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head of Family</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cook</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwife</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Activity 3: The 24 hour day
Purpose: To illustrate the disparity in allocation of work/rest/tasks between farming men and women; to emphasize the process of interviewing and listening to the farmer.
Time: 2 hours, plus prior planning

The facilitators will have recruited the help of four farmers, two men and two women preferably from the same village where the team intends to conduct the site visit. The farmers should represent people who have average workloads. One of the women should be a single head of household. The farmers will have agreed to come to the training site for this activity. The workshop organizer will have arranged transportation and reimbursement for the work time lost for the farmers. Be aware of the need for translators if this is the case.

Ask the participants to divide into four groups. Each group will be interviewing one of the farmers to gather information that will help them recreate on a chart the activities, and the amount of time that farmers spends on those activities during the course of a day. To prevent biasing the results, do not say that the purpose it to compare the amount of work that men do to the amount of work that women do.

Each group will be working with one of the farmers. Before sitting down with the farmer that the group will be working with, each group should determine how they will proceed, who and how they will ask the question (15 minutes).

The first order of business is that the group will explain to the farmer what they are doing and why they are doing it (to understand what an average day is like for that person). Using chart paper, each group is to chart the activities of the individual farmer during one day, from the time they wake up until the time that they go to bed. To avoid distortion that might occur when comparing responsibilities from different seasons, ask that each farmer describes an average day during the period of harvesting the field crops. Use either 1 hour or 30 minute intervals to divide the day, whichever each group- and the farmer- prefers.

Interview the farmers (1 hour), creating the charts according to the sample. Have each group tally the amount of, labor, variety of activities, and amount of rest that their farmers gets.

Groups reconvene and each hangs their chart on the wall, alternating male and female farmer results.

Each group reports back briefly to the rest of the group, common points are drawn out.
Who works more hours, has a greater variety of activities?
Who has more leisure time?
Who gets more sleep?
24 hour day chart sample
landless agricultural laborers in the harvest season

<table>
<thead>
<tr>
<th>women</th>
<th>men</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.a.m. wake up fetch water,</td>
<td>6.a.m. get up, wash, eat</td>
</tr>
<tr>
<td>clean premises, wash vessels</td>
<td></td>
</tr>
<tr>
<td>clean cattle shed</td>
<td></td>
</tr>
<tr>
<td>6.a.m cook, feed, take care of</td>
<td>8.a.m harvesting, bundling,</td>
</tr>
<tr>
<td>the aged and children work as a</td>
<td>threshing, heavy load</td>
</tr>
<tr>
<td>domestic worker in landlord’s house.</td>
<td></td>
</tr>
<tr>
<td>8.a.m. harvesting, bundling</td>
<td></td>
</tr>
<tr>
<td>carrying</td>
<td></td>
</tr>
<tr>
<td>12:20 go home, feed children</td>
<td>1.p.m. resume work</td>
</tr>
<tr>
<td>eat</td>
<td></td>
</tr>
<tr>
<td>1.p.m. resume work</td>
<td>5.p.m. return home, go to market</td>
</tr>
<tr>
<td>5.p.m. return home with fire wood</td>
<td>chat with friends, sometimes look after</td>
</tr>
<tr>
<td>fetch water, tend children/animals</td>
<td>smoke, drink, relax, eat.</td>
</tr>
<tr>
<td>children</td>
<td></td>
</tr>
<tr>
<td>clean the premises, cook food,</td>
<td></td>
</tr>
<tr>
<td>serve to husband and children, wash</td>
<td></td>
</tr>
<tr>
<td>9.p.m. Go to rest, rise to take</td>
<td>9.p.m. sometimes used to guard freshly</td>
</tr>
<tr>
<td>care of children in the night if</td>
<td>harvested crops.</td>
</tr>
<tr>
<td>necessary</td>
<td></td>
</tr>
</tbody>
</table>

Almost all groups should have common aspects in their 24 hours days from men and women, with some minor differences in timing and larger differences in types of activities.
Activity 4: Expectation and Implications
Purpose: To link the previous exercises, and to discuss the implications of the different ways that men and women are taught and are expected to behave.
Time: 1 hour (use the handout and definition for this?)

Work with the group as a whole for this exercise, preferable sitting in a circle or some other informal arrangement that is conducive for discussion. Referring to the information gathered in the previous exercise: Men and women spend their time in different ways doing different activities.
• What does this information mean to the extension worker?
• What does this mean in terms of natural resource management?
Activity 5: Barriers to Production
Purpose: To examine some statistical information concerning women, agriculture and development; to have an open discussion.
Time: 1 hour
Materials: copies of the handout, pencils or pens.

Distribute the handout. It might be a good idea to do this some time before the actual exercise to give the participants time to process the information. Have participants read the material to themselves (15 minutes). Afterwards, have them complete the questions at the bottom of the page (15 minutes). Ask different participants to share their answers. Discussion (30 minutes).
Facts about Food Production

A recent report issued by the International Food Policy Research Institute, based in Washington D.C. concludes that the way that labor and resources are divided between men and women in the developing world is economically detrimental to the world's food production. Many obstacles prevent women from performing their crucial roles in growing food and preventing malnutrition among children. These barriers compromise food security, health care and nutrition now and in the coming years.

The following information illustrates the inequitable distribution of resources between men and women, and how that inequality is evident in related ways.

- **Women work.** Women do more than half of the agricultural work in Asia and Africa, (60-80%) FAO.
- **Women produce food.** Women account for more than half of the labor required to produce the food consumed in developing countries, up to 75% of the labor in Africa.
- **Women are given little to no extension support.** 50% of the population (women) receives 5% of the available agricultural extension support, and the other 50% (men) receives 95% of the available support.
- 15% of the world's agricultural extension force is female.
- Almost all extension activities (90%) are carried out by a ministry or department of agriculture at the national, state or provincial level. FAO.
- **Women manage resources.** Women spend much of their day on time consuming activities, like fetching fuel wood and water, and pounding grain.
- **Ag. Technology has targeted men's needs.** Agricultural technologies have largely been designed for the needs of men.
- **Women work longer hours.** Men have more free time than women.
- **Women work with less.** Women own or have access to fewer materials and technologies than men.
- Women are less likely to own land or be awarded credit than men
- **Women invest in food.** Women, relative to men, tend to spend their income disproportionately on food for the family.
- **Food needs are not being met.** 800 million people go to bed hungry every night.
- More than half of the population south of the Sahara is unable to meet their basic needs.
• **More women are poor than men.** Women represent 60% of the people that the United Nations defines as poor, earning less that US$1 per day.

• **More men are educated than women.** Two thirds of the world’s illiterate people are women.

• **Educated farmers produce more.** Women farmers in Kenya could produce yields 9-24% higher if they had the same experience, education and inputs as men. The same women could increase yields by 24% if they had primary schooling.

• In India the risk of dying from severe malnutrition is more twice as high for girls as for boys, and mothers breast feed boy children twice as long as girl children.

• there is a strong pro-male, pro-adult bias in terms of quantity of food intake in South Asia.

The following statistics are for the United States

• The % of jobs that are sex segregated, (done either by men or by women, but not both): 70.

• Average male salary compared to average female salary: 31%>

• percent of this pay discrepancy that cannot be explained in terms of education, experience or job tenure: 50%

• percent of poor adults who are women (1987): 63%

• percent of poor black adults who are women (1987): 68%

• Amount that the average male high school graduate makes more than the average female college graduate annually:

• Percent of clerical workers who are female: 80%

• Percent of salary that female clerical workers make, compared to their male counterparts: 70%
Sources, information on Barriers

IFPRE News Release, August 1995

Erlich, Paul and Anne. 1995. In Her Hands, a Special Report, Mother Jones, October, p. 34-55.


Others to be identified. Much of this is from Freeman, Claudia Goldin.

References
1. FAO.
2. IFPRE.
3. FAO
4. FAO
5. FAO
6. IFPRE
7. IFPRE
8. IFPRE
9. IFPRE
10. IFPRE
11. IFPRE
12. IFPRE
13. ?
14. Paul and Anne Erlich
15. Paul and Anne Erlich
16. IFPRE
17. IFPRE
18. IFPRE
Questions for discussion:
Consider the following questions, think for a few minutes and provide answers (other than "tradition") for each question:

• Women receive only 5% of the extension resources worldwide, boy children get more food and education than girl children, why is there such a strong tendency to invest in men rather than women- both in the US and in the developing world?
•
•
• Land tenure rights are generally passed along to men. What are the consequences of this practice?
•
•
• If a man is to do a job, for example build a well, what does that man need?
•
•
•
• If a woman is to do a job, for example feed three children by herself, by farming, what does she need?
•
•
•
Activity 5: The Social Construction of Roles
Time: 1.5 hours
Purpose: To pull together information learned from the previous activities; to discuss the implications of gender for natural resource management.
Materials: copies of the handout, pencil or pens

Distribute copies of the handout. Ask participants to read the handout and respond to the questions in writing (30 minutes). Ask participants to share their responses in an open discussion format. Review responses.
What is Gender?

Gender is understood to mean the socially determined differences between women and men, as opposed to the word "sex," which denote physical differences. Gender differences are historically determined, culturally specific and dynamic. They define how in a specific context, women and men interact, and what is considered appropriate for men and women to do, thus determining their development options and constraints.*

Give 3 brief examples in response to each of the following questions:
1) What does gender have to do with natural resource management?

2) How are natural resource management needs different for the men and women that you work with?

3) Women usually have fewer resources to work with than men, what does this mean in terms of their involvement with natural resource management efforts?

4) What are the benefits of the fact that you are a man or a woman in your home and in your work place. (two each)

What are the drawbacks? (two each)

*Guijt, Irene, Making a Difference: Integrating Gender Analysis into PRA Training. IIED, London.
Module 4B
Extension Approaches

• Observation

• What is wrong with this picture?

• Do's and Don'ts

• Asking questions

• Effective extension role-play

• Using the framework

• Extension experiences
Part 4 b
Extension Approaches

Activity 1: Observation
Purpose: To emphasize the importance of observing and being attuned to non-verbal communication; to use the concept of body language as the introduction to the extension module, i.e. a central tenant.
Time: 30 minutes
Materials: instructions for group I

Break the group into three equal sized groups. Group I leaves the room and is given a topic of discussion that they are to discuss when they return. Each member of the group is given instruction as to what kind of attitude they will convey through posture, expression etc. during the discussion. (10 min.) The group return to the room and conducts a discussion in front of groups II, and III who observe. (10 min.) Groups II and III discuss amongst themselves what they have observed, then share this with group I. Group I then explains what they were actually doing during the discussion. (10 min.)
Instructions for Group I

Conduct a brief discussion (10 minutes) concerning any one of the following topics: project officers should be placed in the field; project leaders should be host country nationals; a multidisciplinary team is more advantageous that a team of 'development experts'; funders should/should not determine development 'trends'.

Each member of the group will receive one of the following instructions. Facilitator will explain that participants are to act the part both verbally and non verbally. They are to firsthand think, and then demonstrate how they would show these reactions without saying a word. After they have an idea of the body language they are to use, then add to this the verbal argument. Both parts are important for them to portray, but they want the audience to be able to pick up on the non verbal cues.

Arguing in favor

1. Argue for this. Portray the attitude that you are really interested and feel this strongly, you think anything is possible.

2. Argue for this. You are bored and tired.

3. Argue for this. You want the session to be over soon so that you can...make a phone call. You are impatient to leave, you don't care very much about the issue.

4. Argue for this. You believe this but don't think there is much hope for it becoming a reality.

5. Argue for this. You are impatient that this still is not a reality- you think this should have happened a long time ago.

6. Argue for this. You have a very analytical mind, you don't get very passionate about anything, but you want to break the argument into logical components or issues.

7. Argue for this. You are very interested in the reaction of the other people, you like to observe.

8. Argue for this. You don't want to offend anyone, you don't want to interrupt, you want to please everyone.

9. Argue for this. You think that you are the smartest person in the room, and that all of these people are wasting your time. The answer is obvious to you, these dummies just don't get it.
10. Argue for this. You don't feel well, your head hurts.

11. Argue for this. You drank too much coffee and are jittery.

**Arguing against**

1. Argue against. Portray the attitude that you are really interested and feel this strongly, you think anything is possible.

2. Argue against. You are bored and tired.

3. Argue against. You want the session to be over soon so that you can...make a phone call. You are impatient to leave, you don't care very much about the issue.

4. Argue against. You believe this but don't think there is much hope for it becoming a reality.

5. Argue against. You are impatient that this still is not a reality- you think this should have happened a long time ago.

6. Argue against. You have a very analytical mind, you don't get very passionate about anything, but you want to break the argument into logical components or issues.

7. Argue against. You are very interested in the reaction of the other people, you like to observe.

8. Argue against. You don't want to offend anyone, you don't want to interrupt, you want to please everyone.

9. Argue against. You think that you are the smartest person in the room, and that all of these people are wasting your time. The answer is obvious to you, these dummies just don't get it.

10. Argue against. You don't feel well, your head hurts.

11. Argue against. You drank too much coffee and are jittery.
Activity 2: What's wrong (or right) with this picture?
Purpose: To increase participants awareness to the different ways that people approach extension; to critique different extension behaviors
Time: 45 min.
Materials: Slides (see pictures) more slides are needed for this exercise.

2 pictures: one of traditional top down extension taking place, and another more egalitarian situation depicted.

The facilitator will show overheads, or distribute Xeroxes of the two photos. The facilitator will ask, "what is happening in photo a", "what is happening in photo b". Compare, contrast and discuss the different techniques being used. What are the pros and cons of each?

Photo a. the extension people sitting in chair in uniform with a notebook, the farmers sitting on the ground listening. The farmers do not look engaged.

Photo b. The extension people and the farmers sitting on the ground in the shade of a tree in a circle, talking in earnest.
Activity 3: Do’s and don’ts of extension

Purpose: To elicit from participants their beliefs about conducting village interviews; to allow the group to learn from each other in terms of what the do's and don’ts of interviewing are; to create a common understanding of what should and should not be done in extension interactions.

Time: 45 min.

Materials: flip chart paper, markers, copies of the attached handout.

Explain that this exercise will deal with how you go about conducting a village interview. You are interested in what the participants consider to be the do's and the don’ts.

Divide the group into subgroups of five. Instruct each group to brainstorm on what things are important to do during a village interview, and what things are important to avoid. Give each group the following list and ask that they divide the elements into DO's and DONT's. Then ask that they add anything that has been overlooked that they think is important. If an option is partly correct- change it.

- attempt to rephrase comments
- stop long-winded speakers
- hold spontaneous meetings
- make yourself as comfortable as possible
- accept when the village says that something cannot work
- set a time limit for speakers
- lead the discussion
- allow people to go off on tangents
- refuse to sit on a chair
- encourage women to speak
- make farmers sit on the ground
- plan the meeting ahead of time
- confirm the meeting time
- wear something very official
- enjoy the royal treatment
- act like you don’t know much about the local situation
- make sure that the village leader gets to talk the most
- If you sense political tensions don’t ask too many questions
- make sure that you take extensive notes
- ask permission to take notes
- work around the farmer’s schedule
- use technical language
- don’t be too informal or friendly
- don’t discuss what went wrong with other NRM interventions
- don’t let the village know what resources you have to work with
- let the people with the most land dominate the discussion
- allow people equal time regardless of resources or wealth
make sure that you stick to your planned questions
don't let farmers know when you don't know exactly what they mean
make sure that you let the village know your qualifications
show your technical knowledge
lecture to the group, like your teachers did when you were in school
try to get all of the information possible during the meeting
make sure people know who is the expert
let the farmer know their knowledge is important
don't focus on the past
be positive about what you think the village can accomplish
promise nothing
don't spent too much time answering villagers questions
Have a representative from each group post and present their findings. After all have presented, discuss any discrepancies. The facilitator will comment on the material on the lists, and list the key points that the groups did or did not get. Work from the attached sheet on SSI when commenting on the groups lists. Afterwards distribute copies of the handout (SSI and asking questions). (30 min.) Have someone record the suggestions as they are being made for a communal list. After the session, make copies of the communal list and distribute them to everyone.
Activity 4: Asking questions
Purpose: To make participants more aware of how to best ask questions; to practice critiquing questions.
Time: 1 hours
Materials: Handout with questions, pens or pencils

Have the participants to break into pairs and work together to complete the handout. For each question on the handout they are to A) state what is wrong with the question and, B) rewrite the question to make it more effective. (30 min.)

Afterwards come together and review the responses. The facilitator will ask participants to contribute responses in a rotational fashion. If people are eager to share their responses for a particular question, encourage people to participate so that session becomes an organized group discussion, but continues to rotate in terms of respondents.
A. Should this question be modified?
B. If yes, please rewrite the question

Remember:
• Don’t ask a yes/no question
• Don’t settle for a yes/no response
• Don’t provide a yes/no response

• Are you going to plant millet in that field?
• Will you plant millet or maize in that field?
• How will you use that field?
• Was your harvest worse than usual?
• How was your harvest this year?
• Did you produce a good harvest this year?
• Does the new millet variety work well for you?
• How does the new millet variety compare to the one that you usually use?
• Do you need new tools?
• Did the virus wipe out your crop too?
• was it the virus or the grasshoppers that hit your crop?
• Why was the harvest poor?
• Would you like to sell the surplus milk?
• will you sell the surplus milk or make yogurt with it?
• How many liters of extra milk do you have daily?
• How do you plan to use the surplus milk?

• How much extra milk do you have daily?

• Would you say that things are going well?

• How are things going?

• How would you compare this year to others? such as to a very good year, or to a very bad year.

• What has been the biggest difficulty that you have faced this cropping season?
Activity 5: Effective extension role play
Purpose: to have participants demonstrate what they perceive to be effective extension.
Time: 1.5 hours
Materials: flip chart, marker, copies of skit to pass out to group b

The facilitator will break the group to two. One group will receive assignment a, the other assignment b. The groups are to each design a skit (20 minutes) and then present it to the group. After each group presents, brainstorm about the elements of effective versus ineffective extension. Discussion.

assignment A
Your group is to depict a typical village visit, during which you (the extension team) are trying to obtain some general information (of your choice) about the village. Design a skit that demonstrates what you think is important when interacting on the village level. How you approach the villages etc. Plan the skit, assign roles and then present the skit to the group.

assignment B
This group will be given the worse case scenario Oxfam skit and told that they are to portray everything that you should not do as an extension worker when working with farmers. The skit portrays many things but they should add their own ideas to it.
Activity 6: Using effective extension methods to complete the framework.  
Purpose: To practice completing the framework; reinforce participatory 
extension techniques.  
Time: 1 1/2 hours or more (allow time for flexibility), preparation ahead of 
time.  
Materials: Blank copies of the framework, three (or more) farmers from the 
same village, a village that one of the organizers has some familiarity with.  

This exercise is a role play to be conducted as a “fishbowl”- which is when a 
subgroup demonstrates an activity and the rest of the group observes the 
methods that they use. The performance is followed by discussion and 
criticism in which all participate.  

Ask for five volunteers. The volunteers will prepare for a practice interview, 
they will use the NRMAF and the methods that they have learned to 
interview the farmers. They will have some idea of the NRM issues that the 
village is faced with and will be exploring a particular issue and potential 
solutions to the problem. In the interest of time the volunteers can be 
selected, briefed and prepare for the session ahead of time- that way they can 
conduct the interview at the start of the session time and the rest of the group 
will not have to wait for them to prepare.  

In advance the facilitator briefs the volunteers on some of the major NRM 
issues that the village is faced with. Based on this information the group will 
design a series of questions to ask the farmer during an interview that they 
will conduct in front of the rest of the group. The purpose of the interview is 
to use the NRMAF to explore the NRM issues and possible solutions.  

Ahead of time:  
1. Brief the volunteers about the village and NRM issues there  
2. Volunteers prepare series of questions  

At the time of the session:  
Volunteers conduct an interview with the farmers. The rest of the group sits 
back and silently observes how the interview is handled in terms of what 
they have learned about extension techniques, and using the framework. (1 
hour or as much time is needed)  
After the interview is completed the group discusses how the interview went, 
what worked well, what could have been done differently, was anything left 
out, what impact did the use of the framework have on the interview process, 
i.e. did it help or hinder? (1 hour or more)
Activity 7: Informal discussion, problem solving for extension
Purpose: For participants to share problematic extension experiences that they have had, and to address these situations as a group in an informal setting
Time: 2 hours, (after dinner)
Materials: refreshments, paper & pencils for each participant, a container to draw from (as in a raffle drawing).

Facilitator explains that the group of participants represents a good deal of cumulative experience, and real experience offers many situations that cannot be anticipated in a workshop, or planned for. This exercise is for participants to share extension predicaments that they have encountered, (resolved or unresolved), so that the group can have the opportunity to address the problems together.

Facilitator distributes paper and pencil to each participant. Participants briefly outline a problem extension experience that they have faced (10 minutes). For example:
- You have tried introduce soil improving legumes to a village, but there is no interest in long term improvements because most people do not own the land that they are farming.
- You have tried to incorporate women into agricultural activities, but they don't have any free time.
- You tried X technology but people did not want to adopt it for Y reason.

They are to fold the paper and place it in the container. The facilitator will ask for a volunteer from the group (for variety choose the person who came from farthest away, the person who talks the most, the person with the biggest feet, etc. for variety). The volunteer will draw five pieces of paper from the bucket. Starting with the first paper drawn, that facilitator will ask the volunteer to read the paper, and then ask the author to elaborate on the situation described. Participants are to raise questions for the author concerning the situation if they have them. As a group discuss the situation.
What is the crux of the problem?
Drawing from the expertise of those present, does any participant have a suggestion concerning the problem situation?
Given the information on SSI's that has been discussed, what might have been done differently- according to the person whose situation is being discussed? Allow 20 minutes for each situation discussion. If this exercise is done in the evening, there is the added advantage of more flexibility in terms of timing.
Module 5
Site visit

- Preparing for the site visit/discussion
- Making a plan
- Implementing the plan
Part 5: Three day site visit

The fifth module consists of a three day site visit during which the participants will visit a village and, over the course of three days, enact the participatory methodologies that they have been learning while at the same time completing the NRMAF. The purpose of the visit is threefold; to put into practice the participatory methodologies to discuss a theme related to NRM with villagers; identify specific NRM practices to evaluate with the framework; and identify the enabling conditions that encourage the adoption of the technology.

The group will decide how they wish to proceed and how to organize the three days. Thus the design for the site visit is not as planned out as the rest of the workshop. Each group will decide for themselves how to organize that time, but a few basic guidelines are provided.

The site visit will be conducted in a village in which at least some of the participants have been working. By choosing a village that at least some people are familiar with, the group can benefit from some institutional memory which can contribute to their understanding of the issues that they address. Those who are active in the village can provide a fuller picture of the village situation, those not involved can provide a fresh viewpoint.

The group will stay in the village overnight to allow them more time for observing and interacting with the village. They will bring any necessary staple supplies, such as rice, sugar, mattresses, clean water etc. Some (or a) village women might appreciate the opportunity to make some extra cash by cooking for the group.

Monitoring

At all times one team member will be responsible (on a rotational basis) for monitoring the group’s successful use of participatory methodologies. Over the three days, each person will have this role for at least one-half day. Their job is not to police the group in an antagonistic way, but to take notes about how they think team members are doing, both good and bad. At the end of each person’s half day, they will share the feedback with the group during a 15 minute debriefing period, during which the feedback is presented and discussed. Any dissention should be noted for group discussion at a later point. This should allow any issues to be addressed, but to not disrupt the flow of the site visit.
Activity 1: Preparing for the Site Visit  
Purpose: To orient participants to the intention of the site visit; to make certain that all participants understand the common purpose.  
Time: 2 hours, or more as needed.  
Materials: Flip chart, markers  

In preparation for the site visit the facilitators will lead a discussion, by first announcing that the group will be conducting the site visit and introducing the following questions for discussion, one at a time:  

1. Why conduct the site visit?  
2. What can be achieved during the site visit?  
3. What information do they need to obtain?  
4. How will the information needed be obtained during the visit?  
5. What questions will be asked?
Activity 2: Making the Plan
Purpose: Teams will design plans of action for the site visit.
Time: Two hours, or as needed.
Materials: Handout

Divide the group into three teams making certain that in each team there is an equal distribution between those with experience in the village and those who are not familiar with the village. The teams are to develop a three day plan of action that will address the following, some of which are to be addressed jointly:

1. How will the group introduce themselves to the village and explain the purpose of the visit?
2. Which villagers will the groups work with? How will this be decided?
3. How will the interviews be conducted?

To complete the framework, the following items must be addressed, and appropriate questions must be designed for:

1. Problem diagnosis, verifying that what the team perceives as a NRM problem is also perceive as a principle problem by the village.
2. Discussion of past, present and planned initiatives to address the problem.
3. Discussion of constraints to collaborating with various partners.
4. Identification of impact indicators of practices related to NRM on the NRM parameters.
5. Discussion of the constraints to the adoption or adaptation of a specific NRM technology.

The teams are to decide how they will proceed, design a plan for the site visit and draw up questions.
Module 6
Assessment

• Site visit evaluation/ discussion

• Post-test
Part 6
Activity 1: Assessment of site visit
Time: half a day
Materials: flip charts and markers

After the group has returned from the site visit, they will spend at least half a day discussing their experiences and the information that they have gathered. The discussion will be organized into two parts, the first will be process and the second will be content. A facilitator will guide the discussion.
Activity 2: Post-test
Time: 45 minutes
Materials: The pretest that was administered at the beginning of the workshop.

The facilitator will administer the post-test. The purpose of this is to help the facilitators evaluate the effectiveness of the training, and for the participants to reflect on what they have learned.
Additional handouts and supplemental readings

- Asking questions
- Interview protocol
- The semi-structured interview
- Natural resource management and gender analysis
- What do the facts mean?
- Country profiles
Asking Questions  
(Handout on questions to accompany the overhead)

Adapted from RRA Notes, by Karen Schoonmaker Freudenberger and Bara Gueye, 1990

Interview Questions
Organizing and preparing for the interview
Compile a checklist of considerations to help you prepare for the interview, and to help you use the time most effectively i.e. foster a postive working relationship with the interviewee, and gather accurate, relevant, useful information.

SSI, semi-structured interview, requires that you devise some of the questions as you go along, in reaction to the information that the interviewee is giving you. For example, you are exploring what is the most important problem that the farmer is dealing with, your questions will be in response to the information as it is generated.

SSI checklist:
Prepare a general checklist of the questions that you wish to ask. This will help you stay on track in terms of your general goal, as you proceed from day to day. The list should be somewhat dynamic, and continue to evolve as you proceed, but should help you keep in mind the basic purpose of the visit.

Probing. Once you have introduced a topic to the discussion, explore the issue by asking related questions. This will help give you a more complete picture of the situation, and provide you with information that might be necessary at a later point. To ask probing questions you must be very alert to the potential implications of the information that you are recieving.
Probing questions ask: who? what? where? how? why? when? These can be applied to any topic to help you gather more detailed information. For example, you are exploring the villages available water source which they have identified as a problem.
Who gathers the water?
What is the water availability? i.e. what water needs are met, what are not met.
Where is the water source located?
How is it transported?
Why is this source used, as opposed the other possible options?
When is the water collected, how much time does it take?

Any given topic can be explored extensively, you must decide which topics are priority topics and expend more energy and time exploring priority topics. At the same time, don't impose your priorities. Respond to the priorities of the village and be ready to reprioritize.
Interview Protocol. The conditions of the interview, and the manner can mean either the success of the downfall of the interview. Below are a list of some important considerations.

Dress: Casual, avoid a uniform or anything that implies a hierarchy between yourself and the farmer. Hierarchy can create distance between you and the interviewee and can be detrimental to the information flow. Be aware of the dress code of the area. Dress respectfully.

Intro and Greetings:
Take time to follow cultural protocol with the appropriate greetings, and the appropriate length of the greetings. Have an introduction prepared to let the village know: Who you are; why you are there; how you plan to proceed, i.e. short and long term goals; what you want from them and what you can offer etc.

Location: Choose a comfortable location and a time that is convenient for the interviewees. Arrange the meeting ahead of time, and confirm if possible. All present should be seated at the same level to help diminish the figurate distance between those present.

Interview mgt: With both your team members and the village participants, meetings can get large and unwieldy. Agree on one person who will keep the meeting on track, should it get diverted. There should be flexibility in the agenda, the interview manager will see that flexibility does not become chaos.

How you ask a question can have a big impact on the responses that you get. If you are not conscious of how you are asking questions you can actually put the answer that you are looking for in the mouth of the respondent.

closed questions. Don't ask questions in a manner that can be answered with a yes or a no. This severely limits the information that you get, and brings the interview to a screeching halt. Rather, use the probing words to begin the question. For example, what resources do you sell at market versus, is better than, do you sell at the market. Starting with a probing word allows you to ask open versus closed, or yes/no questions.

leading questions essentially plant the answer that you want to hear in the mind of the respondent. They bias the response. For example, "do you think you would benefit from a workshop in primary health care", versus, "what impact would a workshop in primary health care have on the community?"

Implicit assumptions are when you limit the response options that the respondent can choose. For example: "do you plan to plant sorghum or maize in that field" implies that only one of the other will be planted, maybe the farmer intends to plant millet, you have excluded millet as a possible response. The farmer might not be
comfortable pointing out your error. A better question would be "what do you plan to plant in that field?"

Vague questions can cause confusion. Try to avoid questions that are so broad they can be mistakenly interpreted.

Units of measure. The people that you are working with may not use formal units of measure, such as kilos, or meter. Find out how they express measure of time, weight, distance, etc.
Meeting with the village, either with a group or with individuals, is one time when how you conduct yourself is equally or perhaps more important than what you actually say. Every action or statement that the extension worker makes sends a message to the farmer, about the farmer, the extension worker and their respective roles. As a communicator the extension worker must be aware of both the information that they send and receive. In the past the channel has been quite clear, the extension worker has given information and the farmer has received the information or "solution". The problem with this approach is that everyone misses out on the experience and knowledge that the farmer brings to the table.

Information shared can benefit both parties. This requires a dialogue in which the farmer is informed of what the extension worker has in mind and responds to it before any action takes place. Together the two parties explore possibilities and the likely consequences. Subsistence farmers don't have time to waste so it is in the best interest of everyone for the extension worker to prepare for the meeting ahead of time, to organize the information that they do have for verifications, determine what information they are lacking, and decide the best way to obtain that information.

It may be helpful to think of the meeting as a semi-structured interview. This means that they require some preparation ahead of time but they are semi-structured in the sense that you must be able to devise some of the questions as you go along, in reaction to the information that the interviewee gives you. The interviewer must ask the right questions in a non-directive way. Non-directive means that the interviewee should not be able to guess what answer you were expecting to hear, or should not be limited in their response by the way that you asked the question.

Semi-structured interview provide greater opportunity for the farmer to express what they consider important- or what the extension team has overlooked, and a chance for the extension team to learn. Flexibility and awareness of the situation allows the extension worker to adapt the line of questioning as needed.

Consideration to remember when conducting an SSI:

- Don't lecture, allow people to talk
- Be sensitive, alert and curious
- Ask your questions at the right time
- You are the learner, the student
• They are the teachers
• Involve women
• Observe carefully

Understand what your topic priorities are
• This will help you stay on track in terms of your general goal as you proceed.
• The list should be somewhat dynamic, and evolve as you proceed, but should help you keep in mind the basic purpose of the visit.
• Expend more energy and time exploring priority topics.
• Don't impose your priorities. Respond to the priorities of the village and be ready to adapt your plan of action.

Prepare a general checklist of the questions that you wish to ask
• to help you prepare for the interview,
• to help you use the time most effectively i.e. foster a positive working relationship with the interviewee,
• and gather accurate, relevant, useful information.

Select a meeting manager
Meetings can get large and unwieldy. Agree on one person to keep the meeting on track, should it get diverted. There should be flexibility in the agenda, the interview manager will see that flexibility does not become chaos.

Asking Questions
Once you have introduced a topic, explore the issue by asking the right questions in a non-directive way. This will help give you a more complete picture of the situation, and provide you with information that might be important later on. How you ask a question can have a big impact on the responses that you get. If you are not conscious of how you are asking questions you can actually put the answer that you are looking for in the mouth of the respondent.

These can be applied to any topic to help you gather more detailed information. For example, you are trying to better understand village water needs. Probing questions help you seek out related information.
Who gathers the water?
What is the water availability? i.e. which water needs are met, which are not met.
Where is the water source located?
How is it transported?
Why is this particular source used, as opposed the other possible options?
When is the water collected?
How much time does it take?
Be alert to the potential implications of the information that you are receiving and the information that you are giving. Do the responses introduce other areas that warrant exploration?

**Closed questions:** Don't ask questions in a manner that can be answered with a yes or a no. This severely limits the information that you get, and brings the interview to a screeching halt. Rather, use the probing words to begin the question. For example, "what resources do you sell at market" is better than, 'do you sell anything at the market.' Starting with a probing word allows you to ask open versus closed, or yes/no questions.

**Leading questions** essentially plant the answer that you want to hear in the mind of the respondent. They bias the response. For example, "do you think you would benefit from a workshop in primary health care", will not give you as much information as, "what would a workshop in primary health care do for the community?"

**Implicit assumptions** are when you limit the response options for the respondent. For example, "do you intend plant sorghum or maize in that field?" This implies that only one of the other will be planted. Maybe the farmer intends to plant millet, you have excluded millet as a possible response. The farmer might be aware of your error, but not be comfortable pointing it out to you. A better question would be "what do you plan to do with that field?"

**Vague questions** can cause confusion. Try to avoid questions that are so broad that they can be mistakenly interpreted. For example, "what kinds of resources do you have?" gives no indication of what kind of resources you are referring to. A more specific question would be "when you cultivate millet what kinds of tools do you use?"

**Units of measure.** The people that you are working with may not use formal units of measure, such as kilos, or meter. Find out how they express measure of time, weight, distance, etc.

Organizing and preparing for the Interview. Adapted from RRA Notes (Rapid Rural Appraisal), Schoonmaker Freudenberger, Karen and Gueye, Bara. 1990.

What do you think about the question?
Is it phrased in the best possible manner?
(suggestion for trainers)

- Are you going to plant millet in that field?
  Leading question, suggestive

- Will you plant millet or maize in that field?
  Implicit assumption

- How will you use that field?
  Good, maybe could be more specific in terms of time, i.e. next year.

- Was your harvest worse than usual?
  Leading and closed question

- How was your harvest this year?
  OK, but what crop? How was the corn harvest this year.

- Did you produce a good harvest this year?
  Leading, suggests a response- also a closed question, requires a "yes" or "no".

- Does the new millet variety work well for you?
  Leading- also unnecessarily personal- might be implying that the crop response is a reflection on the person.

- How does the new millet variety compare to the one that you usually use?
  Good, creates a frame of reference in assessing strengths and weaknesses of different varieties.

- Do you need new tools?
  Closed question, and leading, plus anyone would be stupid to say no.

- Did the virus wipe out your crop too?
  Closed question, leading question.

- Was it the virus or the grasshoppers that hit your crop?
  Implicit assumption- limits possible answers.

- Why was the harvest poor?
  Open, but which harvest does it refer to?

- Would you like to sell the surplus milk?
  Leading question, closed question.

- Will you sell the surplus milk or make yogurt with it?
  Implicit assumption, eliminates other possibilities.

- How many liters of extra milk do you have daily?
  Uses a unit of measurement that the villager may not be familiar with.

- How do you plan to use the surplus milk?
  Open but specific.
• How much extra milk do you have daily?  
  *Open but specific, allows the villager to use their own terms of measurement*

• Would you say that things are going well?  
  *Suggestive, leading and closed.*

• How is the cropping season going?  
  *Open, somewhat vague- too general*

• How would you compare this year to others? such as to a very good year, or to a very bad year.  
  *This could provide very helpful information*

• What has been the biggest difficulty that you have faced this cropping season?  
  *This could be elaborated on further to get a more extensive prioritized list.*
Natural resource management and gender analysis

Please consider the following facts:

• Percentage of agricultural labor done by women in Asia and Africa, 60-80. (FAO)

• Women's contribution to agricultural labor in Latin America, 40%. (FAO)

• Percentage of agricultural extension resources worldwide directed towards women, 5. (FAO)

• Average percentage of the labor force that is female
  Sub Saharan Africa 37
  East Asia and the Pacific 42
  South Asia 22
  Middle East and North Africa 16
  Latin America and Caribbean. WB

• Percentage of all extension activities carried out by a ministry or department of agriculture at the national, state or provincial level, 90. FAO.

• Percentage of the world's agricultural extension force that is female, 15%.

• Proportion of clients of the Grameen Bank that are women, 80.

• Repayment rate for the Grameen Bank, 98. (Unicef report)

• Percentage of field workers who are female in the Near East, .5. FAO

• Percentage of female agriculture administrators and supervisors in the Near East and Africa, 4; Europe, 9; Asia 16. FAO

• Global percentage of home economist agents that are male, 4. FAO.

• Female adult literacy rate in less developed countries, 32. UNICEF

• Amount of women to enroll in secondary education for every 100 men:
  Sub Saharan Africa 67
  East Asia and the Pacific 76
  South Asia 54
  Europe and Central Asia 72
  Middle East and North Africa 72
  Latin America and Caribbean 114. WB.

• Percentage of women in least developed countries that use contraceptives, 13,
in developing countries, 53,
in industrialized countries 71.
• Percentage of children with low birth rates, in developing countries 19, in least developed countries 24. UNICEF

• Fertility rates
  Sub Saharan Africa 6.1  
  East Asia and the Pacific 2.3  
  South Asia 4.0  
  Europe and Central Asia 2.2  
  Middle East and North Africa 4.9  
  Latin America and Caribbean 3.0. WB.

• Percentage of the population south of the Sahara unable to meet their basic needs, >50.

Consider the following questions, think for a few minutes and provide answers (other than "tradition") for each question:

• Women receive only 5% of the extension resources worldwide, why is there such a strong tendancy to invest in men rather than women?

• Land tenure rights are generally passed along to the "head of the household," or along patrilineal lines. Why is the head of the household generally a man? What are the consequences of this practice?

• If a man is to do a job, for example build a well, what does that man need?

• If a woman is to do a job, for example feed three children be herself, by farming, what does she need?
Natural resource management is inseparable from gender. Men and women are both "natural resources", yet the circumstances for harnessing the full potential of either gender as a resource vary greatly. Women generally hold little economic or public power, but they often carry an equal or greater burden in terms of agricultural labor than men. Women are not given the resources that would optimize their farming efforts. Women are disadvantaged by inequitable access to extension services, credit and material resources. The impact of this disparity effects everyone in the community. Gender is not a woman's problem. When women are denied access to the resources that could make them more effective contributors to society, society pays the price.

Women do more work with fewer resources, and what they do gain in terms of reward or pay, goes directly back into the community to the benefit of all. Women generally invest in the health and education of children. Men do not do this with their earnings.

In development projects women often provide labor for projects that are headed by men. Usually men are the decision makers, the village leaders, for these reasons it may seem easier for the extension worker to work with men rather than women- after all, men have the resources to work with and more free time. Plus, for cultural reasons is may be easier for men to work with men rather than women. There is not the added complication of fear (on the part of the village men) of sexual impropriety. The result is that women frequently contribute labor while men often maintain project ownership.

The data reveal that there is a contradictions between the perception of what a woman is, what she does and what she actually needs to accomplish those tasks.

Population growth rates are a primary concern of NRM because growth rates put a strain on environmental resources and the ability of a government to provide resources (World Resources). Education is correlated to fertility rates (UNICEF page ?): More education means a lower fertility rate. Further, lack of education and poverty are linked. The less educated are more likely to be poor and to farm on fragile lands with an eye on survival rather than the long term impacts of the practices that they employ.

Poverty, population growth and environmental pressures create a triage. Women play an important role in this triage because they are more likely to be poor than men.

Women do 60-80% of the agricultural work in Africa and Asia and receive 5% of extension resources. The poorer the woman the less likely she is to be educated, the more likely that she will live on fragile lands, the less likely that she will have the option of investing in the long term viability of the agricultural practices that she employs.
The strain on poor women increases as birthrates rise and the use of contraceptives drops. Perhaps this can be thought of as trying to maximize the productivity of a workhorse while at the same time feeding the horse only 5% of its normal diet.

Can any country afford to misuse its resources in this way? More than half of the population of subsaharan Africa is unable to meet their basic needs. Industrialized countries cannot proclaim equitable treatment of the sexes either.

- Why do women only receive 5% of the extension resources worldwide?
- Why do women rarely have land tenure rights?

We can all think of reasons why. Strong societal perceptions exist that keep the inequitable practices alive and healthy. We can generate responses fairly readily, whether we believe in them or not.

For example, it is hard for women to obtain credit because they do not possess land as collateral. If land is passed on only to men then by definition women will not have access to land rights or credit because they are born women and not men.

Laws that require land ownership as a precursor to credit contribute to the problem. These laws help keep the distribution of resources inequitable, they prevent women from becoming financially independent - they keep women dependent.

- Why is this good or bad?
- What would happen if extension workers helped women become more efficient farmers?

References:


The following country profiles reflect the conditions that women, and their children, face.

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>GNP per capita</th>
<th>Births per woman, 1970</th>
<th>Births per woman, 1995</th>
<th>Contraceptive use</th>
<th>Death rate of children under age 5</th>
<th>Female literacy</th>
<th>Male literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhutan</td>
<td>1.6 million</td>
<td>$174</td>
<td>5.9</td>
<td>5.9</td>
<td>N/A</td>
<td>19.7%</td>
<td>25%</td>
<td>51%</td>
</tr>
<tr>
<td>Brazil</td>
<td>161.8 million</td>
<td>$2,920</td>
<td>5.3</td>
<td>2.9</td>
<td>66%</td>
<td>6.3%</td>
<td>80%</td>
<td>82%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>2.4 million</td>
<td>$1,820</td>
<td>5.8</td>
<td>3.6</td>
<td>N/A</td>
<td>7.8%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Russia</td>
<td>147 million</td>
<td>$3,469</td>
<td>2.0</td>
<td>1.5</td>
<td>21%</td>
<td>3.1%</td>
<td>N/A</td>
<td>N/A%</td>
</tr>
<tr>
<td>China</td>
<td>1.22 billion</td>
<td>$364</td>
<td>5.9</td>
<td>2</td>
<td>83%</td>
<td>4.3%</td>
<td>62%</td>
<td>84%</td>
</tr>
<tr>
<td>Italy</td>
<td>57.2 million</td>
<td>$18,588</td>
<td>2.5</td>
<td>1.3</td>
<td>78%</td>
<td>.9%</td>
<td>96%</td>
<td>98%</td>
</tr>
<tr>
<td>Mali</td>
<td>10.8 million</td>
<td>$251</td>
<td>7.1</td>
<td>7.1</td>
<td>5%</td>
<td>21.7%</td>
<td>24%</td>
<td>41%</td>
</tr>
<tr>
<td>USA</td>
<td>263.3 million</td>
<td>$22,356</td>
<td>2.6</td>
<td>2.1</td>
<td>74%</td>
<td>1%</td>
<td>95%</td>
<td>96%</td>
</tr>
</tbody>
</table>
Reflections on Developing a Training Workshop

Katie Carruth
Master's Project
Spring 1996
Dr. Robert Miltz
Two years ago, when I moved back to Massachusetts to attend the graduate program at the Center for International Education at the University of Massachusetts, I brought an assignment with me. The assignment was to design a training workshop for my previous employer, the Rodale Institute. The purpose of this paper is to explore the process that I went through in developing that training, and to reflect on how the academic environment of the University of Massachusetts helped me think about and address some of the issues that arose.

The Rodale Institute is a non-profit development organization based in Kutztown, Pennsylvania. The Institute promotes regenerative agriculture internationally through Regenerative Agriculture Resource Centers, or RARCs. Currently, there are RARCs based in Senegal, Guatemala, and the former Soviet Union. The RARCs promote regenerative agricultural technologies through on-farm research and extension. The emphasis is on farmer involvement in agricultural research. The farmer helps define the research agenda, implement research trials and evaluate the results. In this way indigenous knowledge and current research knowledge and capabilities meet and complement each other. Examples of the technologies that the RARCs are working with include: composting, intercropping, botanical crop protection, varietal screening of soil-improving legumes and others.

The workshop is for agricultural extension workers in the developing world. It introduces a particular methodological tool that the United States Agency for International Development is promoting. The tool, an analytical framework, is to be used in the implementation of regenerative natural resource management projects.

Regenerative agricultural practices are those that are both economically viable for the farmer, and ecologically sustainable on a long-term bases. They do not deplete the resource base, rather they build up existing resources.

Over the past two years I have worked on the training in fits and starts, as time allows, and as my classes address relevant issues and topics. This long-term approach has allowed me to explore issues of particularly interest in depth, to stew over questions, and to stumble over helpful theorists in unexpected places. I will address the process that I
went through in a chronological fashion. This paper represents the steps that I took as I sought to teach myself how to put together a training.

The Assignment

In some ways this assignment was fairly clear-cut. The basic subject matter and approach had been determined in broad terms, a time frame established, and the audience defined. There was some latitude in how this could be implemented, but the objectives were clear: to design a 10-day workshop. The purpose of the workshop is to train extension workers to implement an analytical framework as a decision-making tool for use in regenerative natural resource management projects.

The audience is agricultural extension workers in the developing world. These workers are assumed to have had about two years of technical training beyond the baccalaureate level. It is anticipated that optimal group attendance is 20, with a requisite 50% participation of women. The trainer/trainee ratio is 2:7. The location of the workshop is mostly at a training site, but with a three-day village site visit.

No country is specified for where the workshop will be held. This is intentional. The training is meant to be somewhat generic in that, with a small amount of adaptation, it can be suitable for any geographic location. This is thought to be possible because, although environmental conditions and many other factors may change from site to site, the principles of regenerative agriculture do not change. The difference is in how the principles of regenerative agriculture are applied.

The Framework

The analytical framework is an organizational tool that makes it easier to see if, and how, a technology affects selected situational factors for the purpose of assessing in advance the likely outcome of an intervention. Those factors can be social, historical, political, environmental, or economical. The framework allows the user to anticipate and monitor impacts on the selected considerations. With this information, the user can adjust their approach in response to the feedback that the framework elicits. Evaluation becomes an on-going process, integral to the project.
A high proportion of agricultural development projects fail for a variety of reasons. Many failures could have been avoided, but the reasons for failure often become evident only after much initial energy and time has been expended. The purpose of the framework is to help the extension worker guide the community through the process of assessing the necessary conditions for, and the implications of, a given intervention before such investments are made. The framework is applied to natural resource management using a regenerative approach. A regenerative approach sees the farm as an interconnected system of natural resources, including soil, water, animals, crops, vegetation and other resources. These resources are finite, but if properly managed, can be maintained in a productive fashion on a long-term basis.

The Approach

In addition to its content-oriented information, the workshop necessitates a participatory approach to decision making. Farmer participation is key to the success of the framework. Because farmers are generally more informed about their resources than anyone else; they are far more qualified to respond to most of the questions that the framework poses than extension workers are. It cannot be assumed that workshop participants value farmer knowledge. For this reason it is important that the workshop enacts as well as illustrates the participatory approach.

It became apparent that there were many separate issues that needed to be addressed in this workshop. The framework is based on several assumptions including the assumption that extension workers value indigenous knowledge, regenerative agriculture and the participation and input of women in the community.

Getting Started

I began work on the training during my first semester with a sense of urgency. Having never done this sort of thing before I wondered, how was I to do this? What classes would help me? What were the seminal books, the cutting edge ideas that would help make this project really good? My supervisor at the Rodale Institute, Jonathon Landeck, had reviewed some ideas with me. Landeck has a doctoral degree in nonformal education
and was very helpful in making suggestions and critiquing the project as I proceeded. In some cases, he had specific ideas for activities and for the types of interactions that would take place.

One of his concerns was that there be convincing supporting technical evidence for all of the assertions that were being made. I needed to provide convincing explanations of how the NRMAF material is relevant by showing how it relates to the primary concerns of most agricultural development interventions: lasting food security. This meant a well-researched project. He also wanted to avoid an imbalance between time spent processing material, and the quantity of material to be processed: too much hashing and not enough hash.

We met periodically to review what I had done. These meetings were generally hasty due to his time constraints. Except for general comments and ideas, we did not work very closely on this project, but I did find his criticisms and suggestions quite helpful.

Landeck shared with me his experience presenting the workshop in Burkina Faso and the verbal reactions of the participants. I also had the evaluations and comments from the participants to read through. These provided helpful and specific insights for me. The participants wanted more materials to accompany the sessions and better preparation on the part of the facilitators. Given the short notice that constrained the facilitators in their preparation for the Burkina Faso workshop (a couple of days), this critique did not come as a surprise.

My initial feeling when I began this project was that I was facing a monumental task. I had no idea where to begin. Obviously the assignment had been given to me with the assumption that I could do it. My supervisor knew that I had never done this sort of thing before. He thought that I could do it. The way that he discussed the project made me realize that his mind was popping with creative ideas about how this could be done. Did he assumed that my mind could pop with ideas as easily as his could? I was less convinced, but thought that there had to be a way to figure this out, to teach myself.

I took a class called Curriculum Development for Nonformal Education, thinking that the class would guide me through the execution of the training. What I took with me from the class was an idea of how a curriculum should be structured. Basically, how subjects should be
grouped and broken into subtopics, how information needs to build on prior knowledge and be presented in a sequential manner. This helped me think about how to approach and organize the material.

Applying this information to the workshop I broke the material into six parts: Introduction, Regenerative Natural Resource Management, Understanding the Analytical Framework, Extension Approaches, Site Visit and Site Visit Assessment. Each section had a set of goals and some activities, but they were still basically unshaped and I had no idea how to shape them. What were the pieces that would make up each unit? That was assumed to be prior knowledge, a fellow student told me. Knowledge that I did not have. Had I started in the wrong place?

In the past, when grappling with the unknown, my tactic has always been to see how others have approached a similar problem and to learn from their experience: what works well and why, what to avoid and why. I set out to look at curricula that addressed issues of natural resource management.

A friend suggested that I contact the New England Small Farm Institute and look at their materials. A phone call revealed that this organization has extension materials and a library, but at the time they were all packed on a wagon waiting to be moved to a different building.

In the CIE resource room I found a collection of activities for agricultural extension which had been pulled together by a past group of students. The collection, bound in a durable green plastic binder, was helpful to me. Although many of the activities had been culled from different sources, they were new to me. It was beneficial to see how the activities were organized, how the instructions were structured and presented, and what issues were addressed. The first version of the NRMAF training, which I handed in for the class contained several of these exercises with minor adaptations. Many of these were to be dropped at a later point, but for the time being, they helped me to think about sequencing activities and the type of activities that might help to guide the participants along the path that I wanted them to follow.

Another tactic of mine, when faced with the unknown, is to talk to the people who have the information (as opposed to reading what they have written.) I arranged to meet with three people who were rumored to
have expertise that would be helpful to me, Chris Shatona, David McCurry, and John Pontius.

Chris, a member of my cohort, has experience in materials development, and had participated in a training in Namibia that promoted a similar analytical framework to be used by educators. We met and talked about the training and his impressions of the usefulness of the tool. He shared some materials from that training. The terminology used was similar to that of the NRMAF, and I found the definitions helpful. Chris also suggested some reading materials that might be useful.

David McCurry, a CIE graduate, told me about his experience with materials development. His training had begun long ago with hands-on materials development in the Peace Corps. The subject matter seemed like second nature to David. I suspect that he is so familiar with the subject matter that the obvious is considered obvious. I got the sense from him, and from others, that the way these things are done is to sit down at a typewriter and just pound it out. Just do it, there is nothing to it. But it was becoming increasingly apparent to me that I needed the obvious spelled out. How do people acquire knowledge? What is the best learning environment for my target audience?

John Pontius, another CIE graduate, was preparing to leave for a year in Asia but agreed to meet with me. John was working for FAO in Indonesia on an agricultural training project that I had read about in which rice farmers are trained to use integrated pest management techniques. I was eager to talk with John. John suggested that visual demonstrations, or "parlor tricks," were very useful in getting a point across. The example that he gave involved feeding little chicks pesticides to demonstrate to farmers that pesticide is poison that can kill people just like it kills the chicks. It sounds gruesome, but not when you consider the loss of life and the illness that result every year from misuse of pesticides. This was helpful advice, but where to get agricultural parlor tricks?

Marianne Sarrantonio is a soil scientist who worked for the Rodale Institute's International Programs. I had gone to her "soil lessons" that were given for the benefit of the agronomy interns at Rodale. She is an
excellent teacher and has extension experience in the developing world. On my next trip to Pennsylvania I sought her advice.

Marianne has a bag of parlor tricks that she uses to teach people about agriculture. She was kind enough to share some of them with me. The suggestions that Marianne gave me are the soil experiments in the natural resource management module. One experiment demonstrates the presence of soil microbes in healthy soil, the other demonstrated how soil rich in organic matter has beneficial properties such as improved soil structure and water retention. These demonstrations are important because they illustrate a concept that can be very difficult to grasp: that the soil is a living resource which needs to be considered in relation to an agricultural system.

John's advice about including such demonstrations prompted my thinking about how people learn and are convinced of new ideas. It is not enough to simply provide information in a sequential manner. I needed some fundamental information about how people learn, and why people accept a new idea or technology and why they reject it. At the end of the first semester, I handed in a version of the workshop for the curriculum class. The materials that I had looked at, and the suggestions that people had made were helpful. But I still had many nagging questions in my mind. I needed to better understand the learning process. How could I design a project if I did not understand how people learn?

**Integrating Ideas**

After my first semester, the process of developing the training changed because it was no longer as closely linked to a classroom activity with classroom deadlines. I spent the month of January in Pennsylvania at the Rodale Research Center fleshing out ideas and activities. I now had a core of material to which I could make changes and additions. But as the training was taking shape, so was my uneasiness about what I was doing, and my questions about the basic learning process. As it happened, I was to stumble across some answers in a haphazard fashion. Others remain unanswered.

One of the luxuries of graduate school is being able to soak your head in ideas. There the ideas take shape, some connect and build on
extension services. I decided to divide the extension module into two sections, extension approaches and gender. Jonathon suggested that we name the gender module "mystery" to defray any negative knee-jerk reactions that the term "gender" might evoke.

Jonathon was amenable to the gender material. But the very process of raising those issues with him reinforced for me the gender material that I had been studying. Gender is not a women's issue and should not be relegated to a crash course given to women by women. In some cases a man might be the best person to teach about gender. Gender is equally important to us all, but in different ways. To limit the potential of women is to limit the potential of the family, and of society. The farmer that snoozes in the shade while his wife works around the clock has divided labor in a way that may allow him lots of long naps, but is not in the best interest of the wife, the family, or the economic viability of the farm.

I set about researching women and agriculture to compile statistics that would hopefully shock the workshop participants. I felt that it was critical to explain the cost of this iniquity in economic terms. Certainly men would not be amenable to conceding some equality to women, but maybe if they could see what this meant in terms of their own wallet, they might listen twice. Interestingly enough, the International Food Policy Research Institute, or IFPRI, had just released information about the role of women in agriculture and the economic price tag that was attached.

I continued to delve through the materials on agricultural production in developing countries. Materials such as the World Development Report, UNICEF's State of the Children Report, UNIFEM materials, many Panos publications, OXFAM's training materials, the ILEA Newsletter and many others. I drew heavily on the library of materials that belong to the Rodale Institute's International Program, much of which I had helped compile. I had plenty of information to work with. Using the type of exercises and NFE techniques that I saw elsewhere, I adapted the data to an NFE format.

The greatest percentage of original material can be found in the sections on the framework, and applying the framework, and particularly in the regenerative agriculture section. The section on
regenerative agriculture was interesting to work on because it helped me to visualize agriculture as a system. I hope that it makes evident the consequences of agricultural mismanagement in a simple but accurate way. During my CIE oral presentation of the NRMAF, one faculty member raised the issue of using such terms as regenerative agriculture and indigenous agriculture. The training does not introduce the terms and then define them in a didactic way. Rather it seeks to help people think about nutrient cycling, and agriculture and the environment in a cyclical way: what is removed from and what is returned to the system?

During my second semester, the psychology department offered a course called Attitudes and Opinions. The course was a survey of empirical research about human behavior. The Professor, Isaak Aizen, is a leading theorist in the field of attitude change. I took the course hoping that it would shed some light on the attitude change that I hoped would be part of a successful workshop.

The course provided broad coverage of the intricacies of behavior research on attitude formation and change. What I found particularly interesting was some research that had been done on learner participation. Does participation facilitate learning? If so, what kind of participation is most beneficial? This was not the focus of the class, it probably was not even mentioned by the teacher, but it was fascinating to come across empirical research of this sort. I don't remember the details, but the conclusion was that participation could benefit the learning process, but participation in and of itself was not necessarily beneficial to the learner.

This raises another question: what is the role of western research in nonformal education for the developing world? Does it have a place? What are the consequences of employing it? What are the alternatives?

Other bits and pieces of information clicked into place for me from that class, such as how we come to interpret our past experiences through the lense of our present situations, bringing our past attitudes and actions in line with our present ones. We studied many models of attitude formation and change. The material was interesting but inconclusive. The best predictor of attitude change is to ask people their intentions. I stashed that information away for future use.
Before the start of my third semester, someone recommended that I take a course called Adult Multicultural Educational Development. It was a good suggestion. The course covered, among other things, learning styles. For me what was most valuable was the importance given to meeting people's educational needs by understanding which educational style works best for them. One style is not more valuable than another, except to the extent that it helps an individual learner acquire, process, and create information. At least that is, in part, what I took from the class.

When we discussed this information in class this material made a lot of sense, but I was also stumped. I saw the challenge as: if one wants agricultural extension agents to learn a non-authoritarian style of communicating with which to interact with farmers, but the extension workers are used to receiving information in a top-down way, how can it make sense to submerge the extension workers in the participatory approach? Participatory methodology may be how one thinks the extension workers should ultimately interact with the farmers, but if the approach itself is foreign to the extension agent, then isn't a large part of the message and the material being lost because the vehicle is foreign?

Landeck advocated submerging the participants in the participatory NFE approach and addressing any resistance as it arose. I wondered if there weren't a way of transitioning the learning style approach in a way that would make the extension workers more comfortable, and ultimately help them take in more information. This is a question that I would like to explore more fully at a later date. I think the issue is partly addressed in the workshop by the way that many of the NFE activities are supplemented with somewhat factual readings. For those who are more comfortable taking in information this way, the material supplements activities that may be very unfamiliar and uncomfortable for the participants. This may help them make a transition to a different way of learning.

Summary

I recently heard an academician refer to a masters degree as a non-terminal degree. For me this training has been a non-terminal experience because it raised many questions that I have yet to answer. As I reflect
on my experience at the University of Massachusetts, I think what has been most useful for me in terms of the training, and in broader terms, has been the opportunity to reflect on how we construct our belief systems here in the United States. Education is an intervention. How can we intervene in another culture unless we know what is going on in our own? How can we understand the dynamics of cross-cultural interactions, if we don't understand our own cultural dynamics? By cultural dynamics I mean our social interactions, interpersonal interactions, and our own intrapsychic dialogue. How can we understand our interactions unless we understand ourselves? One can become stymied with this kind of questioning, but to not ask would be a worse fate.

As I complete the master's program, I realize that I have expended far more energy in trying to understand culture and society than I have in trying to learn how to educate or train people. I see this understanding as a necessary precursor to education. This belief has certainly shaped how I have addressed the training and how I divided my energies on the issues that arose from it. Seeing more clearly how we construct our realities will, I think, help me approach other cultures with greater objectivity. For me this is the most important lesson that I take with me.

Working on this training was an interesting and often difficult experience. It was sometimes uncomfortable being pushed forward into new territory that I probably would not have pursued if the occasion hadn't presented itself so conveniently. But in retrospect, that kind of growth can be fortuitous.