WEST AFRICA PILOT PASTORAL PROGRAM
(WAPPP)

OUTREACH MANUAL
FOR PASTORAL COMMUNITIES

INSTRUCTIONAL MODULES FOR TRAINING PASTORAL COMMUNITIES IN HOLISTIC RESOURCE MANAGEMENT

Draft translation from French
October 2002

“THE CROCODILE DOES NOT NEED TO BE SHOWN HOW TO FIND THE MARSH”♣

(Woloff proverb)

♣ In other words, it would be absurd to presume to teach livestock herding to a herder. As for the eyeglasses, they allow the crocodile (or the herder) to « see » his environment more clearly and to make better decisions using the holistic model and the results of monitoring. This is why the image chosen .

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HOW TO USE THIS MANUAL

INTRODUCTION

Background

When it was first introduced in 1994, the West Africa Pilot Pastoral Program *WAPPP*; (*in french Programme pastoral pilote Ouest Africain, PPPOA)* was intended, by virtue of its experimental nature, to test the validity of the holistic model of resource management in the Sahel. In this context, the program's training component consisted originally, on the one hand, of extension activities directed at herders during field missions of both national staff and expatriate consultants and, on the other hand, periodic training sessions for the program's outreach staff. This approach assumed that, in this way, skills would be progressively transmitted to the rural communities concerned. Experience showed, however, that with few exceptions, communities were still far from having a sufficiently firm grasp of the holistic model to be able to manage their resources sustainably by the end of the pilot program.

Preparation of the manual

Starting in 1997, contact was made with specialists in the kind of participatory adult education developed over the past twenty years in various sectors and disseminated in particular by the World Bank's Economic Development Institute (EDI). The 5th Sub-Regional WAPPP Workshop held in July 1998 in Saint-Louis (Senegal) provided an opportunity to lend more depth to this approach and persuaded network members of its validity in terms of strengthening the WAPPP in the sub-region.
This approach to strengthening the WAPPP, which resulted in the preparation of this manual and its accompanying graphic materials, was developed by a team of about a half-dozen people (listed below) in the course of two missions, each lasting three weeks: one to Saint Louis (Senegal) in August 2000, and the other to N'djamena (Chad) in November 2000.

Preliminary nature of the manual

Most of the 38 training modules contained in this manual were tested with volunteer agro-pastoral communities while they were being formulated. Although these communities were not involved in any program and only participated in scattered sessions rather than in the full outreach cycle, the results were striking, and demonstrated, if such demonstration were needed, that the approach is appropriate for this type of target group and for the dissemination of this type of skills.

These encouraging results should not obscure the preliminary nature of this manual, however. A training tool such as this one, and the graphic material upon which it is based, cannot be adapted to all target groups and all situations. Adjustments will be necessary, and arrangements should be made for the users of this tool to remain in contact so that they may, in future, come to a joint agreement on the necessary changes.

Indicators of success

Each training module has been subjected to a detailed pedagogic analysis yielding precise and verifiable (if not measurable) objectives that are indicators of the results of the individual modules.
That said, the efficacy of this training tool as a skills development program can only be judged by the relevant community itself after having participated in the complete cycle.
For the outside observer, the indicator of success will be the community's establishment, or failure to establish, an initial resource management plan that it then implements, monitors and, on its own initiative, modifies as required.

OUTREACH TEAM

Adult training specialist

Caution! This manual *is not* a treatise on adult training! It is a tool for adult training specialists who have some basic background in communications and pedagogy, as well as for those possessing in-depth and long-term training experience, and finally, those familiar with the participatory or "experiential" approach to training. This means that the trainer agrees to function as a facilitator of the learning process, instead of seeking to convey his own "knowledge" to the target group.
We believe that the efficacy of the training tool proposed here will be seriously compromised if it is used by "unqualified" people. By "unqualified", we mean people lacking instruction in, or experience with, adult training. This also refers to those who, although they may possess these credentials and experience, are in fact conventional educators who tend to deliver lectures instead of facilitating the learning process.

Instructional set-up using a co-facilitator

The facilitator of the training sessions based on this manual must necessarily be fluent in the language of the participating community. Facilitation of the experiential process demands, on the part of the facilitator, an ability to perceive the slightest hesitations, frustrations or desires for self-expression on the part of participants, and this is something virtually impossible to accomplish through interpreters.

In cases where there is no adult training specialist available who is fluent in the language of the target group, a set-up may be envisaged (and has been tested with some success) using a co-facilitator who does not have experience in training, but who is both known to the group concerned and fluent in its language.
Moreover, it is entirely possible that, as this training program develops, a growing number of co-facilitators will emerge from the corps of outreach personnel, NGOs, and even schooled auxiliaries from communities themselves. However, the process will always need to be supervised attentively by the training specialist, who will provide the needed support.

Resource person

Even if this training does not purport to "show the crocodile where the marsh is", the holistic model is a complex and exhaustive construct that is not expected to be completely mastered by either the training specialist or his/her assistant.
It is therefore imperative that the training team include a pastoralist skilled in holistic management, who will intervene as needed to provide the necessary clarifications and more detail on certain technical aspects of the modules. This person does not necessarily need to be fluent in the language of the target group.

Community "Secretary"

The facilitator will gauge the degree of literacy of the group undergoing the training cycle: this group may be totally illiterate, but it may also be partially literate, in that some of its members know the rudiments of Arabic script or can transcribe the local language phonetically. The use of wristwatches has also familiarized most herders with reading and writing 'Arabic" numerals. This can prove to be particularly helpful during the implementation of the modules dealing with participatory monitoring.
In all case, it is advisable to have available at every session at least one community member who can read and write both English ***and*** the local language, to serve as "secretary". In the Sahelian countries, this role is often assumed by the headmaster of the village Koranic school.

IMPLEMENTATING THE TRAINING CYCLE

Implementation scenarios

Testing of most of the modules contained in this manual has shown that each one requires, on average, about an hour to complete. The entire cycle, therefore, can take about 40 hours,
Annex # 6 of this manual suggests three possible implementation scenarios: one in which the 40 hours of training occur in a single week (i.e., the

intensive option), one in which the hours are spread out over three weeks (the intermediate option), or one lasting seven weeks (the extended option). The choice of implementation scenario is important, since it will to a great extent determine the effectiveness of a training cycle that can be costly in terms of time and resources. This decision should be made jointly by the agency in charge (on the basis of logistical factors), the facilitator (who will weigh the pedagogical aspects) and, most importantly, by the community concerned (since it determines the availability of the target group).

Sequence of the modules

The 38 modules contained in this manual are arranged in a sequence of nine "instructional units". This structural arrangement received much attention and was adjusted numerous times (see instructional format in Annex 2). The holistic model consists of a sequence of steps that needs to be respected, and from the pedagogical standpoint, certain modules cannot be covered until certain notions have already been covered and assimilated.
As a result, it is recommended that the proposed sequence be carefully followed, with a single exception: module # 4 "*Conflict prevention* ", which is in the first instructional unit (i.e., community outreach), should preferably be dealt with at the very end of the training cycle, as a conclusion to it.

Using the "icons"

The reader will notice the careful attention paid to the graphic representation of the training itself, the instructional units and training modules. While the symbolism and graphic quality of these icons can always be improved in the future, it is important to note that the pictorial representation of *each stage* of the learning process is essential.
Indeed, given the large number of modules to be presented over a variable time period, there is a risk that the cycle will be fragmented, in participants' minds, into a multitude of mini-sessions, and that the model's iterative impact will be diminished.
This is why "icons" will be used throughout: (a) at the beginning and at the end of each intructional unit; (b) at the end of each training session, when the "icons" of the new modules will be displayed, alongside those previously covered, on a bulletin board or wall for the duration of the cycle; and (c) in a three-page "illustrated holistic model" to be distributed to all participants (Annex # 1).

Reference to modules and images

The numbering of the modules will be extremely useful for the outreach team, this is why a module's number is indicated each time it is mentioned in the manual. However, one needs avoid using that number in communicating

with participants; modules should be referred to solely by name and by means of their corresponding icons.
During testing, it became apparent that, given their large number, images needed to be numbered individually (see list of graphic supports in Annex # 3). Facilitators are advised to copy these numbers onto the backs of any photocopies made of the set of original images.
Thus, the first two digits (or the first one in the case of the first nine modules) refer to the module to which the image belongs. The following two digits constitute the ordinal number of the image within the module.

LOGISTICAL CONSIDERATIONS

Utilization of the flip-chart

Experience during the testing has proved that a standard flip-chart needs to be used for the entire duration of the training cycle.
The flip chart may be used on its stand when a map is being drawn, or without a stand (but close to the mat on which the group is seated) when images are being displayed during a discussion, or even placed flat on the mat for certain exercises (e.g., determining the relative value of parcels).

Graphic supports

The images accompanying each module in this manual are *essential* to the training's effectiveness.
It cannot be stressed enough that these supports need to be carefully stored in their corresponding folders.
Before beginning any training session, the facilitator shall make sure that he has all the necessary graphic supports on hand. In the midst of an exercise, rummaging around in folders in search of an image disrupts the flow and concentration of the participants, so be prepared.
Certain documents, and particularly the stickers used to create the village lands map, management plan and calendar, should be left with the community once the training cycle has ended. Prior arrangements should be made to have adequate supplies of these.

Vocabulary in local languages

Annex # 5 contains around fifty words commonly used in holistic management.which are key to the implementation of the training sessions. It is essential that the facilitator confer with the community *before* starting the training cycle, in order to establish the best possible translation of each term. The list of terms can be corrected and completed *at the end* of the cycle.

ACKNOWLEDGEMENTS

The following people were involved in creating the manual and its accompanying illustrations.

National WAPPP team for Senegal:
Malik Faye, national coordinator
Boubacar N'Diaye, trainer
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Darnace Ramdan, graphic artist

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Barbara Howald, adult training specialist
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The concept of holistic management

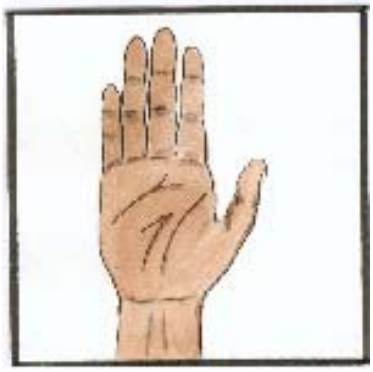
The technical substance of this manual is based upon the work of Allan Savory, director of the Allan Savory Center for Holistic Management <www.holisticmanagement.org>. Although this manual has been developped with the agreement of the Center, the Center is not responsible for its content. For more information, refer to:
Allan Savory, Holistioc management, A new framework for decision making; Island Press, 1988, 616 pages.

The concept of participatory training

References in the text to participatory exercises send the reader to the following publication:
Lyra Srinavasan,
Tools for community participation: a manual for training trainers in participatory techniques
PROWESS/UNDP-World Bank Water and sanitation program
1990, 179 pages.

INSTRUCTIONAL UNIT ONE

COMMUNITY OUTREACH



Introduction to the unit (5 minutes)

- *Customary greetings and placement of participants*

  - Greet community members and any local notables present in the local language, in accordance with local custom.
  - Allow community members to respond and express themselves.
  - *Do not* allow the community to start enumerating and repeating a list of demands and recriminations.

- *Introduction*

  - Start by explaining to villagers what the visitors have come to do. Establish a connection with what they were told by the person who made the preliminary contact with them. (This should be discussed with that person prior to the visit.)
  - Alert the villagers to the fact that this program's *modus operandi* is completely different from what they are probably used to with the administration and donors.
  - Explain that, rather than having to listen to the trainer without saying anything, they will instead do most of the work. They will be involved in all sorts of training exercises that they may sometimes find surprising (e.g., meeting in small discussion groups, enacting small skits, imagining the future of their community, organizing themselves and making decisions to improve their situation, etc.).
  - Emphasize the fact that this outreach cycle will require a lot of time and energy. Although it may be interesting, and even amusing, to look at lots of images and to play the games, stress the fact that this is a serious undertaking that is important for their future and for that of their village.
  - You might choose at this time to present the "icon" for the outreach cycle -- the crocodile with eyeglasses – and to explain what it means. This is crucial since it will be an opportunity to present, however briefly, the very point of the outreach cycle.

- *Introducing the team*

  The person who established preliminary contact with the community should introduce the members of the outreach team (i.e., the facilitator, the co-facilitator, if there is one, the holistic management specialist, and any other member of the team), stating that, if possible, it would be desirable to have a community member who can read and write the local language accept the role of "*secretary*" and attend all the training sessions. The village chief and *all* members of the community are then invited to introduce themselves in turn.

- *Presentation of the instructional unit*

  Once introductions have been made, it is time to announce how the outreach session has been scheduled, in agreement with the community itself (or its representatives): i.e., the duration of the cycle in days; the days of the week when sessions will take place, the duration of each session, the composition of target groups participating in the various sessions, etc.

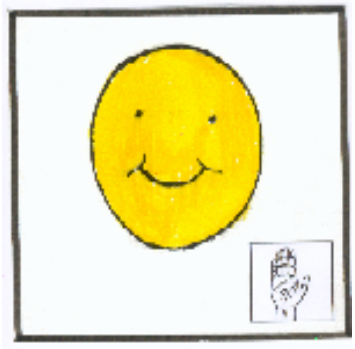
  After this, you might explain briefly that the training cycle is made up of nine different instructional units, each one dealing with a particular aspect of the question. Explain that the first unit deals with relationships between people: i.e., within the community itself, and between the community and outsiders.

  The first group of training sessions will consist of four separate sessions that are interdependent, just as each of the four fingers on a hand needs the thumb and other fingers to be able to pick something up. This is why the groups of sessions will be symbolized by an open hand. You then show the "icon" of the instructional unit and affixes it to the flip chart or wall, explaining that each time a new module has been covered, its icon will be affixed alongside the others, so that it will be easy to see how much ground has been covered.

MODULE # 1

COMMUNITY OUTREACH

TRUST BUILDING



PEDAGOGIC ANALYSIS

Desired situation:

Gaining the community's trust is the first (and decisive) step in any process of helping a group acquire new skills. If the process of establishing trust is managed properly, the following things occur:

- There is a balance in the dialogue between the various interlocutors within the community and with the trainer;
- Each socio-economic group, within the community, has a chance to express its viewpoint.

Current situation:

In reality, however, the situation is often different:

- There can be confusion, or at least mistrust, on the part of the community vis-à-vis the external interlocutors (including the outreach team).
- The power structure within the traditional community often limits the expression of all its members.
- Rigid negotiating strategies are used with external interlocutors (e.g., enumeration of lists of demands and recriminations), thus blocking communication.
- Communities have a tendency to expect the external interlocutor to tell them what to do (which does not necessarily mean that they intend to do it), rather than inviting them to take the initiative.

Disparity between current and desired situation:

Thus, the inadequacies that the module is supposed to correct are the following:

- The rules of the game in traditional societies do not allow all members to express themselves freely.

- The traditional rules also prevent communities from tapping the enormous store of knowledge and experience possessed by all of its members.

First contact between the outreach team and the inhabitants of the village of Keur Martin (Senegal): (23/01)

Objectives of the module

By the end of the program, participants shall be able to:

- express themselves freely and in accordance with new rules of the game that will have been arrived at by common agreement; and
- describe the essential elements of their village's situation, as well as the viewpoints of the various groups making up this community.

LOGISTICS

Target group:

The entire community, with all constituent groups represented, e.g.:

- men and women;
- young people and the elderly;
- herders and farmers, etc.;
- representatives of other resource users (e.g., transhumants, outsiders), if they are available.

SARAR exercises used in the module:

Unserialized posters; (Srinivasan, p. 89)

Graphic supports:

Folder # 1

Approximate duration of the module:
45 minutes

IMPLEMENTATION

1. Introduction to the exercise (20 minutes)

Begin by presenting the exercise to participants :

- You'll give participants a series of unserialized posters developed to stimulate reflection.
- Then, based on these images, you'll ask them to invent a brief story related to their daily life, and to tell it.
- Limit the introduction to these few words, since the idea is to avoid directing participants and to get them instead to express themselves.

2. The exercise

- Place the set of images on the mat in the midst of the group, being sure that women and young people are not pushed to the periphery, and reminding participants that all members of the community are encouraged to participate in the exercise.
- Relying on the storytelling skill of communities with an oral tradition, ask the group to select a few images at random and to invent a story, giving a name to the village where the story is occurring and to the characters in it.
- Remind them that the story must have a plot: i.e., a beginning, a middle and an end. Allow 15 to 20 minutes for this task.
- Once the preparation is finished, have the group tell its story using the selected images to illustrate the sequence of events.

3. Processing of the exercise (30 minutes)

Ask the group to take note of key questions and themes that were brought up by the presentation of their stories. If necessary, invite the group to reflect in more depth on these issues and problems. Note that, at this point, some issues can be set aside for subsequent stages of the program. The following are questions that may facilitate the discussion of the exercise:

- Was the anecdote presented imaginary or real?
- If the situation was real, how was the problem resolved ?
- Do similar situations still exist in real life?
- According to the group, was the situation a really serious one, or are there more serious problems that need to be studied?

4. Transition to the next session (5 minutes)

This exercise will point up the fact that the community encounters difficulties, but that it has the resources to resolve them. The following session will identify the resources that the community has and will clarify how they are exploited. The aim is to define the "***whole to be managed***", or the resources that are under the control of the community. In order to do that, the group will use a tool known to all: i.e., map-building, but it will be used differently this time.

NOTES TO THE FACILITATOR

- The training session usually occurs outdoors under trees where villagers are accustomed to gathering. Make sure that there is a modicum of physical comfort, e.g., mats to sit on and water for participants to drink.

- An essential factor that determines the outcome of the exercise is the way in which participants place themselves on these mats. No group may be marginalized if the entire assistance is to participate actively.

- This experiment will undoubtedly confirm the observation that it can be very useful to use graphic supports that are neutral and open to various interpretations, because of the anecdotes that emerge from them and the discussions that they provoke. The choice of graphic material is very important for the success of the exercise.

- Be careful to always say "*we*" or "*one*" in the dialogue with communities, and to avoid saying "*I*" or "*you*";

- *Caution!*: The participatory process thus created can lead to some later problems, to the extent that participants are empowered to take advantage of a new-found freedom to express themselves outside the confines of the strict decorum that they observe in other circumstances. You must be conscious of this, and this is your responsibility in it.

- As written earlier, you can take advantage of the availability, within the group, of a person able to read and write the local language, asking that person to be the community's "*secretary*" and putting him in charge of writing down on paper the main points of the discussion in order to report them back to the rest of the community. In this case, care should be taken to maintain a balance between written and non-written (i.e., pictorial) material. This remark is applicable to *all modules*.

- Before continuing with the following modules, be sure that *all* the community's constituencies are represented in the group.

- In addition to the questions and discussion topics suggested in the manual for each module, you must make an effort to come up with new ones based on how the outreach session goes. Ask many questions beginning with *why*? *how*? w*hat else*? w*hat would happen if…*? Avoid questions that can be answered with a 'yes' or a 'no'. These "closed" questions require only a limited effort at a response, and put the participants in the sort of "classroom" situation that is exactly the thing to be avoided.

- Do not hesitate to raise the bar on the community's level of knowledge! Indeed, they know much more about their own environment than we do. Our task is not to extract vast amounts of information from them (which we would not be able to use anyway), but rather to help the group to better organize the knowledge it possesses and apply it more effectively.

- *Silence* is never a bad thing. When you ask a question requiring a bit of thought and analysis, allow the group some quiet time to reflect without rushing too quickly for a reply, or jumping to the next step.

- *Always* conclude exercises by helping participants apply what they have learned to their real-life situation. This is why we are working with them !

- A word about trust: The establishment of trust occurs at two levels: on the one hand, within the community itself and among its various constituent groups, and, on the other hand, between the community and its external interlocutors, e.g., immediate and remote neighbors, administration, technical services, etc..Trust does not develop immediately. The important thing is to initiate the process.

MODULE # 2

COMMUNITY OUTREACH

THE WHOLE TO BE MANAGED

PEDAGOGIC ANALYSIS

Desired situation:

In order to be able to manage its resources, a community must be able to identify the "*whole to be managed*", including:

- *the space* constituting the community's environment (e.g., soils, vegetation, etc.), its village lands, as well as spaces outside its own lands that it uses episodically (e.g., when engaging in transhumant herding);
- all *users* (e.g., residents, neighbors, gatherers of straw and wood, transhumant herders, nomads, etc.), their traditions and culture; and
- *resources* (in the form of money, livestock, infrastructures, equipment) or, in short, everything with an comercial value.

Current situation

In reality, however, the situation is more often the following :

- There are often conflicts about the demarcation of territory.
- The rights of all users, and particularly those of rightful users who are not part of the community (i.e., outsiders), are not acknowledged.
- It is impossible to know where livestock is and to predict herd movements.
- The situation is essentially an "every man for himself" juxtaposition of individual usage strategies.

Disparity between current and desired situation:

Thus, the inadequacies that the training module must address are:

- the absence of a consensus on the logistics governing access to natural resources (e.g., the lack of a rational grazing program);
- the failure to take the needs of all users into account; and

- the lack of transparency and scheduling in the driving of herds, and the uncoordinated exploitation of grazing areas.

A woman suggests some changes and additions to information recorded by the men on the map of the village of Keur Martin (Senegal). (22/14)

Objectives of the module

: By the end of the session, participants shall be able to:

- identify all the resources (pastoral, agricultural, infrastructural, etc.) upon which the community relies for its survival;
- identify all users (both constant and periodic) having access to these resources ;
- explain the reasons why all users must be involved in decisions concerning these resources (e.g., rational management, conflict prevention, etc.); and
- draw up, or at least sketch a village map for subsequent use.

LOGISTICS

Target group:

The entire community, with all constituent groups represented, e.g.:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

SARAR exercises used in the module:

Map building (Srinavasan, p. 99)

Materials required

Folder # 2
Bristol paper, 50x65 cm
Pencils, erasers, felt-tip markers

Approximate duration of the module:

2 hours

IMPLEMENTATION

1. Introduction to the exercise (10 minutes)

- Introduce this exercise by explaining that, before one can imagine solutions for the obstacles raised during the previous exercises, a good way to start is an inventory of the totality of resources that the community must manage.
- However, before talking about the creation of a village map, ask the group how one might go about compiling such an inventory.
- In addition to ideas presented, note that this inventory can also be compiled by drawing a map of the village, and that you would like them to try this.

2. The exercise (60 minutes)

- Reassure the group that the point of the exercise is not to produce a work of art. The important thing is to represent things that are really valuable resources in the eyes of the participants.
- Hand out poster paper and felt markers to the group, taking care once again that women and young people (and other groups, if there are any) are not relegated to the periphery.
- Make it clear that all those present are invited to participate in the exercise by sharing their observations and knowledge of the environment.
- Insist that the map include all the elements they consider important: i.e., space (or the landscape, as it will subsequently be referred to), users (whether members of the community or not), and resources (structures, wells, etc.).
- Be sure that the group has identified a few good “points of reference” for the drawing of the map.
- If the group cannot finish the map within the planned timeframe (i.e., one or two hours), the exercise may resume later or the next day. Indeed, since this exercise is the source of precious information and can provide important clarifications, it is best not to rush the participants.

3. Presentation of the map by the group (20 minutes)

When the map is finished, have the participants conduct a “tour” of their map together and comment on its elements. Aside from topographic features, resources and the distribution of population within the village, the participants' explanations may have to do with the following :

- living conditions of the inhabitants, especially things that, in their view, are positive (such as equipment and supplies), and things that are problematic;
- the nature of the relationships between the community members represented.

Don’t forget to congratulate the group for a job well done. (Applause.)

4. Processing (20 minutes)

In order to foster reflection after the participants’ presentation of their map, the following questions might be asked:

- Did participants learn things they hadn’t known before from other members of the group? What things?
- Did the preparation of this map provide them with answers to questions they had previously been wondering about?
- Did the exercise clarify who makes the decisions about the utilization of resources, and about who actually uses them?
- Do users confer amongst themselves on resource management? Are users organized in any way? If so, how?
- Apart from the elements that the group represented, what are some other important community resources that were not or could not be pictured? (A common answer is "the grazing area located outside the village").
- Aside from the users identified during the exercise, are there others who need to be taken into account? Who are they? Where do they come from? When do they come?
- What is the relationship between the community and outside users?
- Is there a system for communicating with them? Are villagers alerted in advance of their arrival ?
- Does this provoke conflict? What kind of conflict?
- Are there resources (in the case of community members engaging in transhumance) that are not represented on the map but that are part of the “whole to be managed”? (e.g., salt licks, etc.)
- When the community temporarily exploits such resources that are far from its own village lands, does this cause problems? What problems? How severe and how frequent are they?

NOTES TO THE FACILITATOR

- This exercise is particularly useful initially, for giving the group a feel for the specificity of the approach, as well as during later scheduled activities.

- In order to be effective, of course, the exercise must be done by the entire community. As usual, you should therefore be careful not to let the best educated people (e.g., schooled children or compliant traders) to control the drawing of the map.

- The main objective of the exercise is, of course, to allow the community to perceive the organization of village lands and the problems that may be encountered in exploiting resources. In this respect, the community should be convinced of the need to involve all actors in resource management.

- If a decision is made to prepare a single village map for the *entire* community, then all village constituent groups must participate in the exercise, either together or in turn. In the latter case, the map is first prepared by the men and then subjected to examination by the women. The men must, however, continue to participate by listening attentively to what the women have to say.

- *Important point*: where should the map be kept, and by whom? How can one ensure that it is a tool that will continue to be utilized (particularly in the course of subsequent modules).

- *Caution*! This exercise must not be conducted like a *rapid rural appraisal* activity aimed at allowing the outreach team to extract information from the group, but should instead be thought of as a way for the community to compile its own inventory of resources.

- Therefore, the exercise is a means of encouraging villagers' self-expression. It is important to avoid criticizing the group's work. If the participants choose, for example, to represent something decorative, or not to scale, let them do it!

- *Variant 1*: A few flexi-flans (Srinavasan, p. 83) characters can be provided to be included in the map.

- *Variant 2*: The group may also choose to begin drawing the map on the ground, in the dust, and then transpose it to paper. This allows shy group members to participate more effectively. Since it is not necessary to hold a felt marker, errors can be easily corrected, and it is thus easier

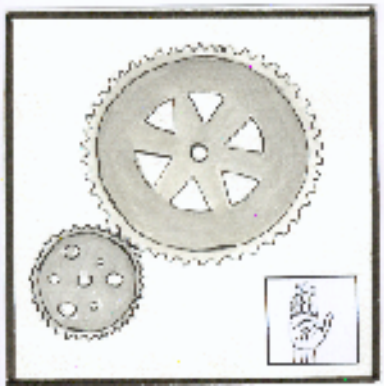
to chose the scale of the map, and decide whether the village alone should be represented ?. should the surrounding lands be included? should it cover all village lands?

- *Variant 3*: Village walk-through. If time permits, the production of the village map can be followed by a transect (or walk-through) of the village, during which the group can point out the elements rendered on the map. Do not forget that the walk-through is not intended to extract information. You will, therefore, remain on the sidelines, allowing yourself to be guided by the group and refraining from any comments or recommendations. Clarifying questions only are allowed.

MODULE # 3

COMMUNITY OUTREACH

COMMUNITY ORGANIZATION



PEDAGOGIC ANALYSIS

Desired situation:

- A functional resource management organization exists within the community.
- Interlocutors within the community are properly targeted (i.e., all constituent groups are represented).
- Organizations are functional, and the roles and responsibilities of these interlocutors are clearly defined and accepted.

Current situation

- There is confusion as to the respective roles of various members of the community .
- There is frequent conflict between new organizations and traditional structures.
- Village notables often control and manipulate the decision-making process.
- New organizations do not always function as they should.
- Channels of communication with those who should be the interlocutors are weak or non-existent.

Disparity between current and desired situation

- Resistance to change;
- New structures that do not fulfill their functions;
- Under-estimation of resources existing within the community in terms of knowledge, experience and organization.

Objectives of the module

By the end of the session, participants will be able to describe current and envisaged community organizations: i.e., their composition, role and

functioning.

LOGISTICS

Target group:

The entire community, with all constituent groups represented, e.g.:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

SARAR exercises utilized in the module:

- Venn diagram
- Unserialized posters (Srinavasan, p. 89)
- Brainstorming

Graphic supports

- Folder #3
- Bristol paper, poster format
- Markers, pencils
- Unserialized posters: people involved in decision-making
- Unserialized posters: required tasks

Approximate duration of the module:

2 hours

It is actually a mistake to speak of "organizing" communities that have always been organized! (Shown here: herders from the Fadjé Djékiné site in Chad). (41/08)

IMPLEMENTATION

1. ***Identification of individuals and groups whose decisions can affect the community:*** (20 minutes)

   Begin the session by referring to the village map created during the preceding exercise, in order to define the "*whole to be managed*". Emphasize the importance of the upcoming exercise, and explain that it will involve presenting to the group ways of organizing itself so that it can implement actions according to the community's goals.

   Explain that, just as they drew the village map and showed the physical resources that existed, it is also important to identify human resources. Conduct a mini brainstorming session aimed at identifying the individuals and groups (whether formal or informal) whose decisions can affect the community itself in one way or another.

   As these individuals and organizations are mentioned by the group, ask the group to choose, from among the Unserialized posters in the "decision-makers" series in Folder # 3, the most appropriate representation. Once all the "decision-makers" have been identified, be sure that there is a specific image available for each of them. If an image is missing, ask a participant to sketch one, or make some other representations on a card. These can include:

   - Women's groups
   - Manager of the tontine (if there is one)
   - Management committee for watering point/well/borehole, etc., if there is one
   - Person in charge of village infrastructure: e.g., granary, mill, etc.
   - Chief of the village or encampment
   - Farmers' representative
   - Cattle herders' representative
   - Shepherders' representative
   - Representatives of hunters, fishermen, etc.
   - Representative of transhumant herders (if there are any)
   - Rural Council
   - Technical extension: livestock, agricultural extension agents
   - Administrative authority, e.g., district commandant, sub-prefect, etc.
   - Other.

2. ***Processing: Analysis of centers of decision-making*** (30 minutes)

   It is then possible to use each of these images as the point of departure for a "living" Venn diagram. One can, for example, affix each of the images to the village map prepared under the previous exercise. This makes it possible to distinguish between individuals and groups that are within the community and

those that are outside it. Provoke a fairly detailed discussion of each of the "centers of decision making". The following points may be covered for each one:

- What does this individual or group do? How is it important for the community's functioning?
- In the case of a committee, who are its members?
- How did this individual or group acquire the right to make decisions affecting the rest of the community?
- Which members of the community are affected by decisions made by this individual or group "decision-maker"?

Ask the group to express what the "decision-makers" do for their community, and how they operate: i.e., do they compete with one another, or do they complement each other? A point will be reached in the discussion where the group will be able to judge whether the community's needs are being met, or whether there are still tasks not being performed from the standpoint of community resource management.

Do not talk about what exists in theory or "on paper". Encourage the group to reflect on the efficacy of "decision-making" in their community. It is essential to be clear from the outset that the idea is not simply to talk about adding a new "committee" to those that already exist. Try to help the group to think about past experience with regard to decision-making and organizations, so as to learn from past mistakes. The following questions (but not necessarily all, or in this particular order) may be useful in moving the discussion along:

- Are there different individuals or groups that seem to be in charge of the *same task*? What are the results of that?
- Are any members of the community active in more than one group? Why? Do they have particular *skills* that make them valuable to these groups?
- Are there groups or needs that are *not represented*, but that should be?
- Are there any needs or groups on behalf of which some sort of organization has been envisaged, but without *success*? Why?
- Are there decision-makers or groups that are *more active* than others? Which ones are they? Why?
- Are there decision-makers or groups that *do not* function well? Which ones? How did that come about?
- Why are certain decision-makers and groups *more effective* than others?

3. Brainstorming: Roles and functions to be fulfilled (20 minutes)

After the above exploration, introduce the notion that decision-making about community resource management is all the more effective if the role and authority of the person or group in charge of deciding are clearly defined.

It is in this spirit that participants might envisage creating structures responsible for managing the community's pastoral resources (again, not just another "Committee"). They therefore need to think about ways to organize themselves. Changes may subsequently prove necessary as the community acquires experience and discovers new tasks that should be taken into account, but it would be a good idea to start right away.

Ask the group to conduct a mini brainstorming session aimed at imagining the various tasks involved in managing the village's resources properly. Use the same approach as that followed at the beginning of the module, i.e., for each idea emerging from the brainstorming, ask the group to choose the appropriate image from among the "*tasks to be performed*" series in Folder # 3.

The following is a list of tasks that the group is likely to identify. If the group does not cover all of them, do not "force feed". The list can be revised once the group has acquired a clearer idea of what is needed for holistic resource management.

- Dissemination of information within the community
- Communication with other communities (adjoining and transhumant)
- Communication with the administration and technical services
- Participation in training
- Programming (i.e., development of the management plan)
- Authority over herds (i.e., ownership)
- Driving herds over the grazing area
- Milking of female livestock and raising of young animals
- Watering of livestock
- Monitoring of changes in their environment
- Protection of cultivated plots
- Surveillance / protection around the site
- Recording of events
- Health monitoring
- Petty cash management
- Other.

4. Brainstorming: Who does what? (40 minutes)

Explain that all of us now need to imagine *who* is to be placed in charge of performing *which* tasks. Arrange the images chosen to illustrate the tasks (step 3) in a vertical column, and ask the group to agree on which person or group of persons should be associated with that task. Be very clear about the fact that the idea is not to indicate "who should supervise", but instead who should be concretely involved in decision-making and in the implementation of these decisions.

- Could the tasks identified be performed entirely by the existing decision-makers? If not, who else could/should be involved in the decision-making process for tasks not yet assigned to someone?
- When a given task can be performed by a person or group identified during the first stage of the exercise, place the image corresponding to this task opposite the image of this person or group.
- When, on the contrary, no-one seems to be in charge of a given task, or able to assume it, ask the group which person or committee could be assigned the task.
- At this stage, images can be offered that were not used previously and that represent other persons or groups that could/should be involved. The list might look like this:

Function/task	***Persons/Committees involved***
Dissemination of information within the community	Social aspects: village chief Technical aspects: auxiliary
Communication with other communities	Oversight and reception committee
Communication with the administration and technical services	Rural advisor at the site or village lands level
Participation in training (agree on target groups)	Village chief, pastoral management committee, auxiliary
Programming of resource management (development of the plan)	"Core" pastoral actors: management committee, women, herdsmen
Authority over herds	Representative of herders and owners
Driving herds over the grazing area	Representative of herdsmen
Milking of females and raising of young	Women
Watering of livestock	Women, water management committee
Monitoring of changes to the grazing area	Environmental auxiliary
Protection of cultivated plots	Farmers' representative
Supervision and protection of the site	Management committee/ oversight and reception committee
Recording of events occurring in the community and on the site	Auxiliary
Monitoring of livestock health	Animal husbandry auxiliary
Petty cash management	Treasurer
Other	Other

- Once the group seems satisfied with the list thus drawn up, ask the "secretary" of the session to commit it to paper and read it back to the group.
- Note that this is a way of recording information that emerges in the course of the outreach cycle, but that in most of the upcoming sessions,

participants will not need to be able to read or write in order to participate effectively.

- Explain that this recording is only essential when participants want to remember and revise something that has been done.
- One can, however, also use images to record the ideas emerging from the brainstorming and the discussion. It is essential that the information be available to anyone during the discussions, and this is why the program will continue to give pictorial representations precedence over written ones.

5 Applications/ transition (10 min)

Congratulate participants on having identified the “core” of their pastoral organization, and ask them to take note of these ideas in order to discuss them with the rest of the community. Ask them how they intend to go about including everyone (for instance: transhumants) in these discussions.

Alert the group to the fact that this subject will be revisited subsequently so that the list of tasks can be revised and the responsible parties identified. The aim will, in fact, be to initiate the process of “programming” resource management, which will take up the second half of the whole training program.

MODULE # 4

COMMUNITY OUTREACH

CONFLICT PREVENTION

PEDAGOGIC ANALYSIS

Desired situation

All users are aware of potential conflicts. They set up mechanisms to prevent and resolve them.

Current situation

- Although users are aware of the existence of conflicts and of the threat of potential conflicts, they have no strategies for preventing them.
- They are helpless to resolve them when they do occur.

Disparity between current and desired situation

- Inadequate power, means, strategies and procedures for preventing and resolving conflicts.

Objectives of the module

By the end of the training session, participants will be able to identify potential conflicts, designate the relevant interlocutors and devise appropriate prevention strategies.

LOGISTICS

Target group :

The entire community, with all its constituent groups represented, i.e.:

- men and women;
- young people and the elderly;
- herders, farmers, etc.

Exercises utilized in the module :

Brainstorming
Story with a gap (Srinavasan, p. 119)

Graphic support

Folder # 4

Approximate duration of the module :

About 1 hour
Caution: Although this module comes at the end of the instructional unit on community outreach, it is suggested that it be introduced at the very end of the outreach cycle, i.e., after module #38 on re-planning.

Participants sort images of the village's interlocutors according to whether they intend to involve them in community decisions or not.
(40/14)

IMPLEMENTATION

1. Introduction :

Introduce this module by observing that this is the last one in the instructional unit on community outreach. Point out the fact that in the course of the outreach cycle, there have been and will be frequent allusions to conflicts about access to natural resources. Potential conflicts must be predicted so that they can be better avoided, and resolved when they do happen. This will mean working closely with all actors in order to achieve the goals that the community has set for itself.

2. *The actors : inclusion/exclusion exercise :*

You should have already selected, from folders corresponding to previous modules, about a dozen images representing the various interlocutors of a herdsman (e.g., transhumant herders, civil servants, farmers, etc.).
Then, draw a vertical line down the middle of a sheet on the flip chart, dividing it into two equal parts.

Ask participants to choose, from among the images proposed, those that represent everyone who is already involved in grazing land management, as well as those who are not currently involved, but who should, and of those that they think would be unhelpful, or even harmful, in this process.

Next, ask them to affix to the left-hand column the images of people that they intend to work with, and to put the images of people they would want to ignore or avoid on the right-hand column.

Once all the images have been attached to the flip-chart, cover the left-hand column with a piece of paper and ask participants: "What would you think if I told you that the people you considered useless or harmful (i.e., the ones in the right-hand column) were precisely the ones with whom you should seek to work first and foremost? What would be your reaction?" Observe the participants' reaction. Finally, ask a series of questions to clarify the reasoning behind this "surprising" proposal .

- Why is it necessary to try to work with these people?
- What is the danger in avoiding or ignoring them?
- What problems might be encountered or created if they are excluded?

Follow this discussion up with a brainstorming session on potential conflicts.

3. *Brainstorming session on concrete examples of conflict*

Ask participants what types of conflicts they have already experienced in their village.
Each time a type of conflict is put forth, hand the participant who suggested it the image that represents it, marked with a lightning bolt (expressing the idea that this is a "hot button issue"!). For example:

- destruction of crops ;
- destruction of trees ;
- competition for water ;
- competition for grazing space ;
- excessive physical proximity of strangers in the village;
- brush fires;

- contagious diseases, etc.

Once the main types of conflicts have been identified, get participants to discuss the negative consequences of these conflicts.

- What are the impacts of these conflicts? (in terms of production; in terms of the atmosphere in the village; in terms of time wasted in resolving a conflict once it has occurred; long-term deterioration of relationships with neighbors, etc.)
- Then ask participants if they have strategies for preventing these conflicts. What are these strategies ? The following story deals with ways to predict conflicts and prevent them before they happen.

4. The story of the village of Mardjandafack

Using about a half-dozen images selected from folders corresponding to previously-covered modules, tell the story of the village of Mardjandafack:

Mardjandafack was a prosperous village, with a dynamic organization of herders that had made it possible to increase agricultural production considerably. Livestock, milk, millet, sorghum and sesame were so abundant that the weekly market in Mardjandafack was the most heavily frequented one in the region.

The women of Mardjandafack could be easily distinguished from those of other villages, because of their lovely jewelry and clothing, which they bought with money earned from the sale of agricultural and livestock products. Mardjandafack was the envy of all the neighboring villages, in terms of its organization, its rational resource management and the profits derived from its products.

One market day, all the talk was of a large group of transhumants who were driving their herds towards the grazing area that the villagers of Mardjandafack had devoted so much effort to improving. The head of the neighboring village hurried over to the village chief of Mardjandafack as a gesture of solidarity and to offer his help in repelling the outsiders.

The chief of Mardjandafack did not seem too concerned, however, by this news. Indeed, he had already been informed by intermediaries of these transhumants, who were in the habit of camping on the village lands of Mardjandafack every time they visited their salt licks to the north. The Management Committee of Mardjandafack had been in contact with them since the previous year, and together they had drawn up an agreement binding the village and other users of the grazing area. The chief knew that there was not really a problem, since the management plan was as clear to the transhumants as it was to the villagers.

In fact, the village chief agreed with his pastoral management committee that,

provided that the transhumants would mix their herds with the villagers' herds and, therefore, would follow the rules that the villagers themselves followed, the transhumants' stay in the grazing area was beneficial. Indeed, the passage of a large number of animals had a salutary effect on the soils and vegetation of their grazing area.

In sum, everyone was satisfied with this arrangement. The transhumants and their intermediaries knew that, as long as they exerted a modicum of control over their herds, they were always well received by the village. The local authority (i.e., the sub-prefect), weary of having to resolve constant quarrels in other villages over tranhumants, also took a favorable view of this arrangement.

The chief of Mardjandafack confessed to his neighbors that the village had indeed experienced conflicts in the past, but that experience had shown that such conflicts were harmful and easily avoided. It is not always easy to be a good neighbor, but the effort pays off! The chiefs of the neighboring villages took their leave of the chief of Mardjandafack, feeling a bit less envious and quite eager to figure out how they, too, could adopt the same approach and avoid conflicts with transhumants.

5. Processing: lessons to be learned :

Encourage participants to reflect on this story and to draw some conclusions about the need to have a conflict-prevention strategy. Here are some sample questions:

- Do you recall one of the first modules in the training session, which was about the "*the whole to be managed*"? Are the transhumants part of this whole? What are the implications of that?
- Do you think that Mardjandafack has a real conflict-prevention strategy?
- If so, what does the strategy consist of?
- Why do you think this village adopted this strategy instead of, for example, resisting the arrival of the transhumants?
- What happens when the transhumants arrive in the vicinity of the village?
- Do you think that things would have turned out the same way if the villagers had not had their strategy? How would they have turned out?

6. Creating a conflict-prevention strategy

Go back to the story about the village of Mardjandafack and ask participants to try to reconstruct the strategy that was described, so that they can apply it to their own community.

Instead of imposing the strategy's various steps upon the participants, create a situation in which this emerges from questions and discussion. Each time the idea of a thing to be done is put forth, take out the corresponding image.

- First, identify the *actors* with whom conflict could occur (groups of transhumants, traders, neighbors, etc.). How can they be identified?
- Find the *circuits of communication* that could be used to communicate with them before a crisis erupts (i.e., before their arrival). How can they be contacted?
- Come to an agreement on ways to prevent the emergence of conflicts and on *the potential reasons* for such a conflict: e.g., access to water, pasturage, camping sites, etc. How can one talk about these things?
- Devise an explicit, concrete *mutual agreement*, either informally or with the support of the administration, setting out the rights and responsibilities of all parties. How can such an agreement be reached?
- Make a commitment to the *implementation of this agreement,* for example by creating a supervisory committee that would take charge of visitors upon their arrival in order to explain the management rules. How can one ensure that this agreement will actually be enforced?
- In the event that *conflict occurs* despite these efforts, pre-arrange a system to resolve conflicts once they have happened. How can conflicts be resolved amicably with the least possible involvement of the administration?

At the conclusion of the exercise, ask someone to summarize the steps that have been identified during the discussion.

7. Application

Once participants seem convinced of the need to handle conflicts before they occur, instead of afterwards, and once they have come up with concrete suggestions for implementing such a strategy, conclude the session by observing that this reflection needs to continue after the outreach cycle ends. If participants have no further questions or comments on the content of the module, show them the icon representing *"conflict prevention*" and place it next to the three other icons of the instructional unit on "*community outreach*" that were studied at the very beginning of the training program.

8.: Conclusion using unserialized posters

Caution: the following paragraph is only applicable to this module if the module is covered at the end of the outreach cycle. If this is not the case, use this information at the end of the last module covered by the cycle.

Thank participants for having participated to the outreach cycle through to the end. Tell them that the cycle will end as it began, i.e., with images. Place the images on the mat (images from other modules, icons, etc., can be added) and ask participants to use them to create a story that expresses what they are feeling at the end of the outreach cycle. They may use any images and can visualize any scenario, from the most serious (e.g., a summary of the holistic model) to the

silliest (e.g., mimicking the quirks and behaviors of the facilitator and resource persons).

Withdraw for a few minutes, leaving participants at liberty to fashion their story. Be sure that women and young people are involved and that their feelings are also reflected in the story.

Have participants tell their story. Applaud at the end. Invite participants, including women and young people, to comment on what has happened over the program's many days, and to make recommendations for similar programs that could be organized in the future, either for them or for other communities.

NOTE TO TRAINERS

- This is the sample conflict-prevention strategy setup by pastoral communities under the WAPPP in Chad :
  - *Identify* other users
  - *Inform* other users, if possible through those who vouch for them or mediate for them
  - *Explain* to transhumants, upon their arrival, the community's goals, procedures, obligations, and rules;
  - Establish a "*Gentlemen agreement"* within the community, to be open to anyone who want to be a part of it. The agreement may be oral or written, informal or approved by the administration.
  - *Incorporate* herds belonging to outsiders into the Management Plan;
  - *Pay* fees for the use of water and the remuneration of water haulers;
  - Decide on *remedies* to be used if a conflict erupts despite implementation of the strategy

INSTRUCTIONAL UNIT TWO

THE HOLISTIC GOAL

Introduction to the instructional unit on the holistic goal (10 minutes)

- Show the group a pot resting on the three stones of a hearth, and ask what would happen if one of the stones were pulled away (Answer: the pot would fall over and the soup would spill out.)
- Explain that, over the next three sessions, they'll be reflecting on the best way of making decisions, since they have already done the inventory of the community's resources and studied ways of organizing themselves. Ask: "When you need to make a decision, where do you start?" (Answer: with a goal, since without a goal one doesn't know where to go).
- This is why, together, we will try to define the community's goals precisely. This is so important that three sessions will be devoted to it, during which we will study the three aspects of the community's goals, which depend on one another just like the hearth stones that hold up the pot. They are:

  - ✓ The quality of life to which one aspires;
  - ✓ The activities or types of production that are envisaged and that are expected to bring about this quality of life;
  - ✓ What the landscape, or community environment, should look like in order to permit the activities envisaged and, thus, the desired quality of life.

MODULE # 5

THE HOLISTIC GOAL

QUALITY OF LIFE

PEDAGOGIC ANALYSIS

Desired situation:

In order to be able to manage its resources properly, a community must possess the following skills:

- an ability to express goals, arrived at by consensus, concerning the quality of life of all its members; and
- an ability to distinguish between the *elements* that constitute quality of life and the *means* that are supposed to improve that quality.

Current situation

In real life, however, the situation is often the following:

- The community has never had occasion to confer on a joint, long-term goal. Instead, individuals pursue their own ever-changing goals in response to successive crises.
- The community often confuses quality of life itself with the means that are supposed to improve it (e.g., wells, dispensaries, schools); and
- The community does not see the connection between quality of life and other goals (e.g., production, landscape, etc.).

Disparity between current and desired situation

- frequent confusion, on the part of the community, between the quality of life it is seeking and the actions through which it hopes to improve that quality;
- the fact that many projects are identified by the nature of the services they deliver rather than by the objectives they are pursuing.

Objectives of the module

: By the end of the session, participants shall be able to:

- explain the importance of agreeing on a goal specific to the community;
- explain the difference between the ***goal*** and the ***means*** employed to attain it;
- explain that there are different ways of achieving the same goal;
- describe the difference between quality of life and the means used to achieve it;
- agree on common goals at the level of their community.

The quality of life goal is established by three sub-groups: men, women and young people. *(23/07)*

LOGISTICS

Target group:

The entire community, with all constituent groups represented, e.g.:

- men and women;
- young people and the elderly;
- herders, farmers, etc.

SARAR exercise used in the module:

Variation on the "three-piles sorting cards" exercise (Srinavasan, p. 101)

Graphic supports

Folder # 5

- stack of assorted images on the "***quality of life***" aspect of the holistic goal. *Caution*: since there are three small working groups, three complete and

identical sets of the assorted images pertaining to "***quality of life***" are required.
- Generic icon for "***holistic goal***" (i.e., a pot resting on three hearth stones)
- Specific icon for "***quality of life***" (i.e., a woman holding a baby).

Approximate duration of the module:
1 hour

IMPLEMENTATION

1. Introduction to the "Quality of life" module

- Show the generic icon for the holistic goal (i.e., pot resting on three stones) and indicate that the first topic of discussion will be the participants' hopes and concerns about the quality of life they would like to have.
- Next, describe the procedure that will be followed: participants are asked to identify, with the help of images that are shown to them, what they consider to be the most important goals in terms of quality of life. If there seems to be any confusion about what certain images symbolize, you moght provide clarification.
- So that no-one is left out, the exercise is conducted in three groups, which then pool their ideas.

2. Exercise "the village's hopes and dreams" (15 to 20 minutes)

- Ask participants to divide themselves into three groups: men, women and young people. Give each group a packet of images and ask them ***first*** to choose a few images that might symbolize what they wish for most in terms of quality of life, ***then*** to state what these images represent for them and, ***finally***, to explain the reasons for their choice.
- Ask the reunited group to pool the ideas developed by the three small groups. It is not important to arrive at a consensus at this time, since consensus will be sought in the remainder of the exercise.

3. Processing. (20 minutes)

During the discussion that concludes the exercise, you will try to exploit the results of the process by asking, for example, the following questions:

- What was the participants' reaction to this exercise? Was it easy or difficult to pool ideas? Why?
- Were any significant differences observed in the goals expressed by the three small groups? What were they? How were they reconciled?
- Why is it important to take these differences into consideration?
- When an important village decision is in the offing, it can be made either

on the basis of the inhabitants' quality of life objectives, or on the basis of the envisaged actions (e.g., well, equipment, etc.). What difference does it make? Which is preferable?

- What is the danger in failing to take into account the quality of life elements when making important decisions affecting any community?

4. Formulation of the community's goals (10 minutes)

- Based on the results of the exercise, you then invite the group to set out the community's quality of life goal. (This should consist of no more than a half-dozen points.)
- The "secretary" takes notes and reads this goal back to the group for its approval.
- Once written down, the goal is affixed to the village map.

5. Transition to the next session (5 minutes)

- Ask the group if community members ever ask each other about their quality of life goals when an important decision concerning them is to be made? (i.e., by the villagers themselves, the administration or the technical services.).
- Explain that, during the next training session, the group will continue this exercise by establishing its own goals in terms of activity or production.
- You may now display the "*quality of life*" icon showing a woman holding a baby. This icon may be used in later stages of the training program.

NOTES TO THE FACILITATOR

- This exercise is very good for developing participants' self-confidence and capacity for analyzing their own concerns at the local level. It can also be adapted in countless ways.

- The pooling, in the larger group, of quality of life objectives identified by the sub-groups (consisting of men, women and young people) is particularly useful and instructive.

- It is *useful* because it allows participants to grasp, in an experiential way, the divergent opinions that can exist within a community, and it is *instructive* in that it allows the facilitator to gauge the group's degree of cohesiveness.

- *Caution*: in describing their quality of life goal, communities often confuse the goal itself (e.g., more free time in the case of the women), with the means used to achieve it (e.g., a village grain mill);

- In order to be ready to oversee the definition of the community's quality of life goal, you should, prior to the session, peruse a few examples of goal formulation that are available in documentation disseminated by the WAPPP.

- The images on goals available in folder # 5 have to do, for example, with religion, education, health, etc. You have to get the participants to see the distinction between the ***goal*** and the ***means*** used to achieve it. For example:

  - ✓ Concerning religion: one can cite, as a ***means*** of practicing one's religion, the creation of a place of worship, a mosque, a Koranic school, etc.;
  - ✓ Regarding education: possible ***means*** include Koranic schools, high schools, literacy campaigns, etc.
  - ✓ Health: ***means*** can include dispensaries, a health post, a maternity clinic, etc.

MODULE # 6

THE HOLISTIC GOAL

PRODUCTION

PEDAGOGIC ANALYSIS

Desired situation:

In order to be able to manage its resources properly, a community must be able to:

:

- envisage new activities (e.g., gardening, trade, handicrafts, etc.) while remaining attached to its traditional activities;
- be realistic and consider the constraints in its environment (with reference to the landscape goal to be studied next), while remaining open to the possibility of implementing new activities;
- discern the connection between the forms of production it chooses and the quality of life to which it aspires.

Current situation

In reality, however,

- herders, instead of envisaging the rationalization the intensification or the diversification of their activities, are forced to pursue individual subsistence strategies, and do not necessarily take all possible activities (or other actors) into account; and
- great divergences in aspirations exist within a single community, without community members being clearly aware of this fact or inclined to make them compatible and/or complementary.

Disparity between current and desired situation

The gap that this module is therefore intended to bridge is the following:

- inadequate comprehension of the synergy that can exist between

different activities that could be implemented by the various members of the same community;

- Failure to take into account the differing interests and activities of the members of a single community (e.g., herders, farmers, hunters, artisans, traders, etc.).

The group of men arranges images of production activities on the village map that was prepared previously. (22/18)

Objectives of the module

By the end of the session, participants shall be able to:

- explain why it is important to take the activities of all community members into account;
- envisage new activities;
- show how these activities would allow them to attain the quality of life they want.

LOGISTICS

Target group:

The entire community, with all constituent groups represented, e.g.:

- men and women;
- young people and the elderly;
- herders, farmers, etc.

SARAR exercises used in the module:

Variation on the “three piles sorting cards” exercise (Srinavasan, p. 101)

Graphic supports

Folder # 6

- three piles sorting cards of “production goal” contributing to the holistic goal. *Caution*: since there are three small working groups, three complete and identical sets of the assorted images pertaining to “production goals” are required.
- “production goal” icon (showing a cow and her calf.)

Approximate duration of the module:

1 hour

IMPLEMENTATION

1. Introduction (5 minutes)

- Transition: remind those assembled of the presentation given during the preceding module and indicate that today’s task consists of studying “the second stone on the hearth”.
- Point out the relationship between the quality of life goal (studied in the previous session) and production activities (studied in three groups, i.e., men, women and young people.)
- Explain that, as a follow-up to the last session on quality of life, the group will explore how it might be possible to choose production activities as a function of the desired quality of life.

2. Production activities sorting exercise (15 minutes)

- Describe the procedure to be followed. This consists of identifying activities that are feasible and compatible with the quality of life goals. The aim is therefore to establish a relationship between the quality of life goal and the production goal. This is done with the aid of images.
- As was done during the previous exercise, and in order to avoid leaving anyone out, ask participants to divide themselves once again into three groups – men, women and young people. Give each group a packet of images, and ask participants to choose a few images that represent potential production activities that would allow them to attain the quality of life goal they have set for themselves.

3. Pooling ideas (15 minutes)

- Once the groups have chosen their activities, they are then asked to meet again in a single large group and to pool their images.

- Ask the group next to designate a spokesperson for each type of activity and to present the ideas that have been developed.

4. Processing the exercis; (20 minutes)

- Having done the exercise, do the participants think it is easier or more difficult to develop ideas about what should be done in this way ?
- Why is it easier or more difficult ? Who else is there ?
- Were there significant differences between the three groups ? Why is it important to take these differences into account?
- Are the members of the group sure that they have not forgotten anyone (or any group) in their community ?
- Do participants think that the activities envisaged would allow the community to attain the ***quality of life*** goal it has set for itself? How ?
- Which new forms of production can they think of; that were not represented among the images distributed ?
- If this procedure, which consists of choosing a community's activities as a function of its goals, is useful, then why isn't it ever used in real life ?

5 .Conclusion and formulation of the community's goals (10 minutes)

- Based on the results of the exercise, ask the group to establish the community's production goal (which should involve no more than a half dozen points).
- The "secretary" should take notes and read the goal back to the group for its approval.
- The goal is then affixed to the map of the village, next to the quality of life goal.
- At this point, the facilitator can display the "***production goal***" icon, which shows a cow grazing together with her calf, and which will be used during subsequent exercises.

NOTE TO THE FACILITATOR

- The holistic goal is not static, but is instead constantly evolving. In establishing the community's goals, begin by developing goals that attract the broadest consensus, leaving more specific goals for later.

MODULE # 7

THE HOLISTIC GOAL

LANDSCAPE

PEDAGOGIC ANALYSIS

Desired situation:

In order to manage its resources properly, a community must possess the following:

- an awareness of the fact that a landscape is not immutable, but instead can deteriorate or be rehabilitated, depending on how it is used;
- an awareness of the multiple causes of ecological degradation;
- a conviction that controlling landscape degradation requires concerted action on the part of the entire community, as well as an individual commitment from each person;
- an ability to see the connections between its future landscape, the production activities it envisages and the quality of life to which it aspires.

Current situation

In reality, however, the situation is most often the following:

- Community members are usually acutely aware of the deterioration of their environment.
- They adopt a fatalistic attitude, however, rooted in a feeling of powerlessness in the face of environmental degradation.
- They generally claim that this degradation is caused by inadequate rain and is in the hands of providence.

Disparity between current and desired situation

The gap that this module is therefore intended to bridge is the following:

- an excessively narrow interpretation of the causes of ecological degradation; and
- individual, rather than coordinated, resource exploitation (i.e., the “every man for himself” attitude).

At the beginning of the exercise, the facilitator displays images of a landscape in various stages of degradation. (23/04)

Objectives of the module

By the end of the session, participants shall be able to:

- express their conviction that it is possible to restore the environment by improving its management ;
- describe the future landscape that would allow them to achieve the production goal formulated previously.

LOGISTICS

Target group:

The entire community, with all constituent groups represented, e.g.:

- men and women;
- young people and the elderly;
- herders, farmers, etc.

SARAR exercises used in the module:

Story with a gap (Srinavasan, p. 118)
Semi-structured conversations based on assorted images

Graphic supports

Folder #7

- Two posters (double A4 format) of the “story with a gap”
- Stack of images of the "*landscape*" part of the holistic goal
- Village map previously drawn up by the group
- “*Landscape goal*” icon

Approximate duration of the module:

90 minutes

IMPLEMENTATION

1. Introduction (10 minutes)

Repeat the introduction to the preceding module, mentioning the three-part holistic goal symbolized by the three stones on the hearth. Just as a pot cannot stay upright if one of the stones is removed, no effective decision can be made if one of the elements of the holistic goal – quality of life, production and landscape -- is neglected.

2. Presentation of the story with a gap (20 minutes)

- Display the poster showing the “before” situation, i.e., a severely degraded landscape.
- Tell the following “story with a gap”: A family lives in a village located in an extremely degraded environment. Provide the name of the hypothetical village (Ndourndour in a previous example) and enumerate some of its problems (poor health, inadequate nutrition, lack of a school, etc.) that have forced the men of the village to look for work abroad.
- Tell the story up to the critical juncture at which something must be done to rectify this unbearable situation.

3. Analysing the changes in the village (30 minutes)

- Ask participants to imagine the various reasons for the deterioration of the situation.
- Once that has been done, present the image of the “after” situation and give the group some time to discuss and identify the improvements that have been made.
- Ask the group to imagine what actions were undertaken by the villagers to change the condition of their environment and to move from the “before” situation to the “after” situation; allow the group to contribute ideas freely.
- If necessary, show the group the images selected during the

preceding exercise (*production goal*) in order to stimulate creative thinking.

4. Application to the participants' real life (40 minutes)

- Ask the group to spread out the previously-prepared village map and proceed to reflect in the same way on its own map, which represents the village's current situation;
- Invite them to choose images representing the production goal that they would like to develop, and place those images on the map in the appropriate places.

You can ask questions such as the following to stimulate discussion:

- What is the group's perception of the condition of the environment in its own village? Would it allow for the implementation of the envisaged production goal?
- Allow enough time for all participants (including men, women and young people) to give their opinions while referring to the map.
- Is the previously established production goal compatible with the current landscape as it has been described? Or would it be necessary, on the contrary, to modify the landscape? If so, in what way?

5. Transition and formulation of the community's goals (15 minutes)

- Specify first of all that this session is the last one devoted to the holistic goal; ask the group to recall the image of the three stones on the hearth, and to suggest a few ways in which they might share the results of the preceding reflection on community goals with people who had not attended the sessions, in order to convince them of its usefulness.
- Based on the preceding discussion, invite the group to establish the community's future landscape goal (in no more than a half-dozen points).
- The "secretary" takes notes and reads the goal back to the group for its approval.
- The landscape goal is then affixed to the map of the village, along with the two others.
- At this point, you should display the "*landscape goal*" icon, which shows livestock silhouetted against luxuriant vegetation, and which will be used in subsequent exercises.

- Make the transition to the following module by explaining that the next few sessions will cover more technical subjects, but that these are necessary and will be understandable by all.

NOTES TO THE FACILITATOR

- This “programming” exercise is well suited for use at the village level. However, remember that involvement on the part of pastoral communities can require a certain experience that they (and particularly the women of such communities) do not always have. Persevere.

- The facilitator should consider ways of getting people outside the community (e.g., neighboring communities, administration, technicians) to understand and approve the process of establishing the holistic goal. Indeed, it very often happens that administrative and technical people think they “know perfectly well” what everybody’s goals are and that it is pointless to spend too much time on this issue, whereas it is the point of departure for the holistic process and must be a constant point of reference.

- One indicator of the participants’ ability/desire to improve management of their resources is the following: do they blame bad luck? Or do they accept their own share of responsibility for the degradation of their environment?

INSTRUCTIONAL UNIT THREE

ECOSYSTEM'S BUILDING BLOCKS

Introduction to the four blocks of the ecosystem (5 minutes)

Bring the group over to a traditional hutt near the meeting place, and have them observe how it is constructed.

- The first things to be erected are the four corner pillars of the house.
- Why are they so important? (Answer: they give the house its shape and solidity.)
- Then have the group reflect on our environment. In the participants' view, what are the most important pillars of our environment? (The group does not need to provide a correct answer at this point. Just asking the question is enough.)

Explain then that the next four training sessions will be devoted to the four "pillars" or "building blocks" of the ecosystem.

- Display the icon for the ecosystem (the four pillars of a house, as it happens), and indicate what it means.
- Conclude the introduction by announcing that they will first study the water cycle.

MODULE # 8

ECOSYSTEM'S BUILDING BLOCKS

THE WATER CYCLE

PEDAGOGIC ANALYSIS

Desired situation:

- Community members can explain that, although they have no power over the amount of rainfall, they can enhance the effectiveness of the rain that they do get.
- Community members have a comprehensive understanding of the water cycle that takes into account, in addition to rainfall, what happens to this water at the level of the soil (e.g., percolation, runoff, evaporation, etc.).
- They are able to identify factors that determine the efficiency of the water cycle (denuded soil, hardpan, erosion, runoff, percolation, evaporation, etc.).
- They are able to manage their grazing lands in a way that improves the water cycle.

Current situation

- Herders are more concerned with the volume of precipitation than with where it goes, especially when it cannot penetrate the hard soil crust.

Disparity between current and desired situation

- Herders are not sufficiently aware that a given quantity of precipitation can be exploited in many ways depending on whether or not it enters into the soil (i.e., in the form of effective rain).

Objectives of the module

By the end of the session, participants shall be able to:

- describe the water cycle;
- explain how, although they cannot influence the quantity of rain, they can make increase its impact, effectively making it rain "more" ;
- describe the factors influencing the water cycle ;
- explain the relationship between "useful" water, percolation and the hard soil crust.

After 15 minutes of reflection, members of the community of Boudiouk (Senegal) were able to reconstruct the water cycle. (42/06)

LOGISTICS

Target group:

The choice of target group is left up to the community and the outreach team. It is good for the entire community to be initiated into the basics of holistic management, although it is more efficient to work with a smaller group that is more directly involved. In the latter case, the target group shall be made up of at least the following:

- pastoral management committee;
- the community's pastoral auxiliaries;
- herdsmen or herd guardians.

SARAR exercises used in the module:

Variation on unserialized posters (Srinavasan, p. 89)
Hands-on demonstration of percolation and run-off.

Graphic supports and demonstration material:

Folder # 08

- Arrows made of colored paper (about 10)
- Series of images pertaining to the "*water cycle*"
- A place, close to the meeting site, where the soil is compacted and where it will be possible to demonstrate water percolation
- Watering can
- hoe to loosen the soil
- generic icon for "*ecosystem's building blocks*" (four pillars of a house)
- specific icon for "*water cycle"*

Approximate duration of the module:

1 hour

IMPLEMENTATION

1. Introduction (5 minutes)

Introduce the session by asking the following questions:

- Has the quantity of rain received by the village varied in recent years?
- Can one change the quantity of rain that falls? For example, can it be doubled?
- Since this is impossible, what can one do to take better advantage of the quantity of rain that is available?

Explain that the group will now study ways of better managing the limited amount of water available.

2. Structured exercise on the "water cycle" (10 minutes)

Put the series of random images pertaining to the "*water cycle*" down on the mat, in the midst of the participants.

Invite participants to study the series of images carefully for a few minutes, and then explain what they see. Help them to express themselves, if necessary, by asking questions such as the following:

- Of the three scenarios pictured (water soaking in, water running off, water evaporating) which one do they think is the most preferable ? Why ?
- When they look at the image of water rising back up to the sky, ask them what is really happening there.
- What is the difference between the two images that show clouds?
- How are clouds formed? What feeds them?
- Do plants take advantage of all the rain that falls ? If not, why not?

3. Recreating the water cycle (10 minutes)

Put the images and the arrows back down on the mat in the middle of the group and in no particular order, and then ask participants to study the images again. This time, they are to arrange them, using the arrows, in a way that shows what actually happens in nature. (see illustration above)

If necessary, ask the following questions:

- What relationships can one see among the images? (Allow the group enough time to come up with an answer.)
- Refer back to the discussion at the beginning of the session: if the quantity of rain cannot be increased, can one do something to better utilize the water that actually does fall to earth?
- How could one improve the situation, given the fact that one cannot make it rain more?
- What happens to the water that soaks into the ground? (Answer: it becomes available to plants, it replenishes the water table and, hence, the wells.)

4. Hands-on demonstration (10 minutes)

This exercise illustrates the type of soil treatment that can help to better exploit rain by making it more effective.

- Lead the group to a spot of ground previously selected for this purpose, and gather participants around it in a circle.
- The demonstration consists of showing that water behaves differently depending on whether the soil is loose (after having been worked with a tool) or has a hard crust;
- Pour identical amounts of water on two spots. The water poured onto loosened soil obviously sinks in quickly, whereas the water poured onto the hard crust remains on the surface or trickles away.

- ♦ Ask participants to explain what they see and to comment on it.

5. Processing and lessons learned (10 minutes)

Ask participants the following questions:

- ♦ Based on what the group has just seen, what happens on the grazing area when it rains? Does the water soak in, or does it run off?
- ♦ Given this observation, and knowing that it is better if water can soak in, what is the disadvantage of compacted soils covered by a hard crust?
- ♦ Has the level of the village's water table varied over the past few years? Has it gone up or down? How can this be explained?

6. Conclusions / Applications (10 minutes)

- ♦ What conclusions can one draw from this demonstration and from the discussion of the water cycle ?
- ♦ Isn't it obvious, in the end, that a faulty water cycle (i.e., one in which a large portion of rain is lost to run-off) can be just as serious a problem as a drought?

7. Application and transition to the next session (5 minutes)

- ▪ How can these ideas be applied to the landscape around us?
  - ✓ Is the idea new to participants, or did they already know it?
  - ✓ If it was already known, was the knowledge applied? If so, how?
  - ✓ Why is this lesson important?

- ▪ Agree with the group on an icon/symbol that will stand for the "*water cycle*" for the rest of the training program: e.g., a small gray cloud over green vegetation.

- ▪ In order to encourage the group to start thinking about how to get water to penetrate instead of running off, make it clear that this will be studied later, but that we first need to study the "health" of the soil, which will constitute the second building block of the ecosystem: i.e., the "*nutrient cycle*."

NOTE TO THE FACILITATOR

- ❑ In this module, it is important to identify in advance the spot where the demonstration will be conducted so that the

demonstration is as convincing as possible.

- Prior to the session, you have to check that the five images and five arrows for the “water cycle” are available, since the group will need a complete set.

- For field demonstration, you need a local team member to help by selecting the demonstration site and to ensure that the required material is available.

MODULE # 9

ECOSYSTEM'S BUILDING BLOCKS

NUTRIENT CYCLE

PEDAGOGIC ANALYSIS

Desired situation:

- Herders are familiar with the cyclical nature of nutrient circulation (for mineral and organic matter) in the soil.
- They are capable of managing their grazing areas in a way that enhances the cycle of mineral and organic matter.

Current situation

- Aside from manure, (the value of which is recognized by farmers), most herders are unaware of the importance of the cycle of mineral and organic matter in terms of soil fertility and grazing land productivity.
- They have a simplistic notion of soil fertility (i.e., soils are either sterile or fertile.)

Disparity between current and desired situation

- Absence of a dynamic perception of soil fertility.

Objectives of the module

By the end of the session, participants shall be able to:

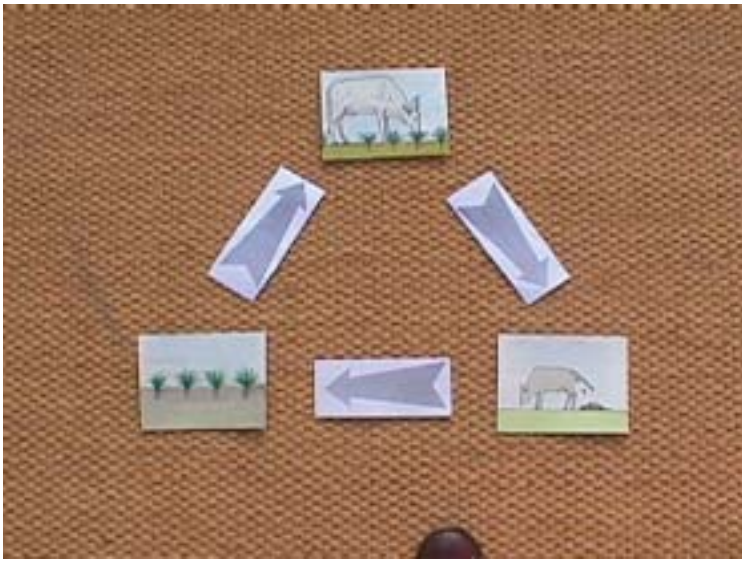
- explain the nutrient cycle;
- explain the relationship existing between soil fertility and the nutrient cycle;
- distinguish between a good nutrient cycle and a faulty one.

LOGISTICS

Target group:

The choice of target group is left up to the community and the outreach team. In the latter case, the target group shall consist of at least the following :

- pastoral management committee;
- the community's pastoral auxiliaries;
- herdsmen or herd guardians.



The nutrient cycle, as reconstructed by the inhabitants of Boudiouk (Senegal) after 20 minutes of reflection. *(42/10)*

SARAR exercise utilized in the module:

Variation on unserialized posters (Srinavasan, p.89)
Nutrient cycle structured exercise

Graphic supports and demonstration materials

Folder # 9

- Arrows made of colored paper (about 10)
- Series of unserialized posters on the "*nutrient cycle*"
- Specific icon for the "*nutrient cycle*" (pile of cow manure)

Approximate duration of the module:

45 minutes

IMPLEMENTATION

1. Introduction (5 minutes)

If some time has elapsed since the preceding session, have participants summarize the most important things they retained from the study of the first building block of the ecosystem, i.e., the water cycle.

As a follow-up to the preceding exercise (on the water cycle), introduce the notion of soil ***fertility*** by asking questions such as the following:

- Do plants develop just as well in sand as they do in good soil ? If not, why not ?
- Is water the only factor affecting a field's productivity ? If not, what other factors might play a role ?
- Other ?

2. Images of the nutrient cycle (mineral and organic matter) (20 minutes)

- Since you are going to focus on the role of organic and mineral matter, take care to employ the appropriate vernacular terms (see Annex # 5) and ensure that the group understands what you are talking about.
- Place the stack of random images on the "*nutrient cycle*" in the middle of the group; ask participants to study these images carefully for a few minutes and to discuss, amongst themselves, the relationships they see between them.
- Next, as was done with the water cycle, have them arrange these images on the mat, using the arrows to depict a sequence that seems logical to them, thus illustrating the relationships that might exist among them. (See illustration above)
- Have the group present the results of their organizing the images;
- In wirking through with the particitants, take care that the relationships existing between all elements in the cycle are clear before proceding.

3. Processing: the value of organic and mineral matter (10 minutes)

Ask participants to reflect on the value of organic and mineral matter, using their familiarity with the value of manure as a point of departure.
Develop the analysis further by asking questions such as the following on the value of plant litter (i.e., the remains of dried and crushed vegetation) left on the ground after livestock has passed through.

- Do the members of the group who engage in farming use manure ? How and why ?
- What is, therefore, the benefit of manure to plants?

- Is the same true of plant litter (i.e., remnants of dead plants trampled by livestock)?
- What else to they use? (Fertilizer, etc.) How? Why isn't it used more regularly?

4. Utilization: assimilation of nutrients by plants (10 minutes)

Once the value of mineral and organic matter has been established, you might guide the group into a reflection on the process by means of which plants absorb and utilize useful organic matter from the soil. The following questions may be asked :

- How do plants use the nutrients in manure and these dead plants?
- How can plants derive the benefit of this organic matter if the soil is hard and dry? (This is an allusion to the discussion of the previously-studied compacted soils.)
- If necessary, mention the existence and function of insects and soil bacteria.
- What are some indicators that the nutrient cycle is functioning well, or poorly? Where is the obstruction occurring?

5. Brainstorming (10 minutes)

At this point, ask members of the group to suggest ways to encourage the transformation (i.e., the decomposition) of plant litter so that it can be as useful as possible for plant growth. The following responses will probably be offered:

- Plowing or turning of soils;
- grinding of crop residues;
- rain (if participants mention rain, remind them of the previous discussion about what one can do if the amount of rain cannot be increased);
- trampling by livestock.

6. Transition to subsequent modules

- Which of the actions just envisaged might be applicable immediately ?
- Without going into too much detail, ask how one might encourage livestock to trample plant litter so that it would become part of the soil's organic matter.
- Agree with the group on a symbol or icon that will stand for the "***nutrient cycle***" for the remainder of the training program. (A picture of a small pile of cow manure on the ground will suffice.)
- Finally, explain that they now have two of the four pillars needed to build, or strengthen, their ecosystem. Inform also that, although less time will be spent on the following pillar, i.e., solar energy, it is just as important as the others in terms of the solidity of the whole system.

NOTES TO THE FACILITATOR

- As was true of the preceding exercise on the water cycle, logical arrangement of the random images illustrating the nutrient cycle requires that the group possess a good capacity for observation and abstraction.

- Participants perform the exercise very attentively and finish with a burst of enthusiasm once they finally manage to show, by means of the arrows, how the cycle's elements fit together.

- As was done for the preceding module, make sure in advance of the session that the three images and the three arrows that are to be arranged in a sequence by the group, are available.

MODULE # 10

ECOSYSTEM'S BUILDING BLOCKS

ENERGY FLOW

PEDAGOGIC ANALYSIS

Desired situation:

- Herders are perfectly aware that, in addition to soil and rain, grazing land productivity depends upon the sun.
- They therefore try to enhance the exploitation of energy flow by increasing the density of vegetation and by augmenting the proportion of the plants likely to collect a large amount of light, and to remain longer in their vegetative stage.

Current situation

- Herders are generally unaware of the role of the sun (e.g., in photosynthesis). They think of the sun only as a source of heat and light.
- Herders think that rain is enough to make things grow.

Disparity between current and desired situation

- Lack of awareness of the role of photosynthesis
- Lack of awareness of the importance of the density and composition of flora for grazing land productivity.

Objectives of the module

By the end of the session, participants shall be able to:

- explain the role of soil, water and sun in fodder production;
- explain the relationship between plant density and efficient exploitation of solar energy.

LOGISTICS

Target group:

The choice of target group is left up to the community and the outreach team. In the latter case, the target group shall consist of at least the following :

- ♦ pastoral management committee;
- ♦ the community's pastoral auxiliaries;
- ♦ herdsmen or herd guardians.

SARAR exercise utilized in the module

Variations on unserialized posters (Srinavasan, p. 89)
Energy flow exercise

Graphic supports:

Folder #10

Approximate duration of the module:

30 minutes

IMPLEMENTATION

1. Reference to cycles of water and mineral matter

Place the images representing the water cycle on the mat and have the group reconstruct the cycle as they did during the previous session. Repeat the exercise with the nutrient cycle. *Capitalize on remarks about the sun that may have been made previously.*

- In addition to water and nutrients, what do plants need to develop? (Answer: sunlight)
- What is the sun's role?

2. Images of energy flow

Give images pertaining to energy flow to participants and have them arrange them however they like.

The objective now is to establish parallels between the lessons derived from the water cycle, the nutrient cycle and energy flow, by asking questions such as the following:

- Can one influence the amount of rain that falls? (Answer: no)
- Can one influence the amount of sunshine that the village gets? (Answer: no)

- What ways did we think of to take better advantage of the water that does fall? (Answer: loosening the soil surface so that plants derive maximum benefit from the available water)
- How, then, can one take best advantage of sunlight? (Answer: by treating vegetation properly so that plants can multiply and thus take advantage of this free resource.)

3. Conclusion/proverbs

Agree with the group on the symbol or icon that will stand for "energy flow" for the remainder of the outreach cycle. (A picture of a sun with rays emanating from it will suffice.)

To conclude, ask the following questions :

- What conclusions can one draw from our discussion of energy flow?
- Do you know of any proverbs that illustrate these ideas?

MODULE #11

ECOSYSTEM'S BUILDING BLOCKS

ECOLOGICAL SUCCESSION

PEDAGOGIC ANALYSIS

Desired situation:

- The herder is familiar with the fact that the activation of ecological succession (i.e., successive waves of plants and animals) in the direction of greater diversity brings about greater environmental stability;
- The herder is aware that ecological succession can be influenced in the direction of greater diversity (i.e., of flora and fauna), and is willing to take advantage of it.

Current situation

- Herders adopt a fatalistic attitude towards the deterioration and impoverishment of ecological succession.
- Herders generally attribute this deterioration to adverse climatic conditions.
- They generally see ecological succession as a one-way process leading inexorably to environmental degradation and desertification.

Disparity between current and desired situation

- Herders are convinced that they have no power to rectify the process of deterioration that they observe around them.
- Herders are unaware of, or ignore, the relationship between ecological succession, biodiversity, stability and sustainability.

Objectives of the module

By the end of the session, participants shall be able to:

- Define the concepts of succession, biodiversity and ecological stability;
- Explain the relationships between succession and biodiversity, on the one hand, and between biodiversity and ecological stability, on the other;
- Explain how, depending on circumstances, biodiversity can evolve in one direction (e.g., towards impoverishment) or the other (e.g., towards enrichment).

After the brainstorming session, participants hold-up sheets of paper representing species that have disappeared. (25/10)

LOGISTICS

Target group:

The choice of the target group is left up to the community and the outreach team. In this case, the target group should include at least the following:

- Pastoral management committee;
- The community's pastoral auxiliaries
- Herders or herd guardians.

SARAR exercises utilized by the module:

Unserialized posters (Srinivasan, p. 89)
Brainstorming

Graphical support and demonstration materials:

Folder # 11

- About ten sheets of colored paper;
- Series of unserialized posters on "*ecological succession*";

- About twenty small flags or, if these are unavailable, sheets of A4 paper, preferably colored ;
- Icon representing "*ecological succession*" (a stylized rabbit.)

Approximate duration of the module:
1 hour

IMPLEMENTATION

1. Introduction: description of the environment (5 minutes)

Remind the group first that they shall now deal with the fourth and last “pillar” of the ecosystem: “*ecological succession*”.

Ask the participants (and particular older individuals) to take a couple of minutes in silence to try to recall what their environment looked like as far back as they can remember.

- Ask them next to observe what the same environment looks like now;
- Put the stack of unserialized posters on “*ecological succession*” down on the mat, in the middle of the group;
- Explain that this time, the idea will not be to reconstruct a cycle, but instead to determine how the various stages of deterioration succeeded each other over time;
- This succession can represent *either* the situation as it was earlier around the village along with the current situation, *or* the current situation around the village, along with the landscape that they would like to see in the future;
- For the *former situation,* place the green sheet on the left, to represent the landscape as it was in the past, and the yellow sheet on the right, to represent the currently degraded landscape;
- For the *latter situation,* place the yellow sheet on the left, to represent the landscape as it is today, and the green sheet on the right, to represent the landscape they would like to see in the future.
- Then ask the group to select images and classify them in order of increasing degradation, or improving rehabilitation, as they wish.

2. Brainstorming: disappearance of species (20 minutes)

Ask participants to name species (of animals or plants) that used to exist around their village, but that have disappeared.
.

- Each time the name of a vanished species meets with the group's approval, give one participant (not necessarily the one who named the species) a small flag or sheet of colored paper.
- The point of the exercise is to get the group to realize how many species have disappeared. Thus, only the names of species that have not yet been mentioned will be accepted.
- Ask participants to raise their hands once they feel that the list is complete.
- Ask someone to count up the number of vanished species identified, and to tell it to the group.

3. Analysis: consequences of a lack of biodiversity (20 minutes)

Observe a moment of silence to underline the importance and seriousness of what has just been done, and then ask the group to comment on the results of the exercise . (Make this sharing of observations fairly brief, and be careful that it does not degenerate into a lamentation session.)

Next, ask the group the following question: what are the consequences of this loss of biodiversity? Participants may, for example, put forward such ideas as the following:

- Increasing scarcity of plants of good nutritional quality for livestock;
- Increased risk of food shortages in the event of drought;
- The population is less well nourished (due to the disappearance of game);
- People must travel increasing distances to find water;
- Degradation of grazing lands, lack of pasturage;
- People must travel increasing distances to find firewood;
- Production (in terms of livestock and agriculture) is increasingly variable from one year to the next;
- What are the consequences of the loss of biodiversity? (Answer: Migration of villagers towards cities, for example.)

4. Generalizations and conclusions (15 minutes):

In order to prevent the group from concluding that all environmental deterioration is only due to lack of water, ask the following questions:

- What practices led to this deterioration?
- What will happen if this resource degradation continues at its current pace?

- Would it be possible to reconstitute the landscape as it existed in the past?
- Are village resources used in a way that takes the need for environmental stability into account?
- Given the insights that the group has acquired since the beginning of the training session, are there things that could be done differently?

Finally, come to an agreement with the group on an icon that can represent "***ecological succession***" for the rest of the training. Since herders have informed us that a sign of rehabilitation of vegetation was the reappearance of rabbits on pasturelands, a drawing of a rabbit may be appropriate.

5. Finalization of the instructional unit on the ecosystem's building blocks (5 minutes)

Ask participants to summarized what they have learned about the four pillars, or building blocks, of the ecosystem that they have studied during the latest training sessions.

- What are the most important ideas that they have retained?
- Why is it important to take all four blocks into consideration at once?
- What would happen if one neglected one of the blocks (just as when termites destroy one of the pillars of a dwelling) ?;
- Remind participants that they will repeatedly refer back to these four building blocks of the ecosystem, and that it is therefore essential that they understand what they consist of.

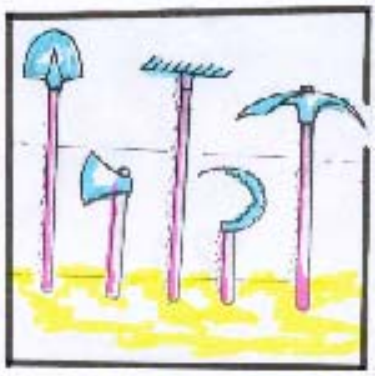
NOTES TO THE FACILITATOR

- The brainstorming exercise aimed at identifying vanished species provokes a high level of participation and a lot of enthusiasm.

- It is a good idea to let the group have free rein in this, and to conduct the final counting of vanished species with a certain solemnity, since the frustration felt by the participation at this juncture can prove important for their subsequent commitment to community activities aimed at correcting this situation and re-establishing biodiversity.

INSTRUCTIONAL UNIT FOUR

MANAGEMENT TOOLS



Introduction of the Instructional unit four (5 minutes)

- You'll first have to check to see that you have at least three farming (or gardening) implements with which to do his brief introduction. You hold each one up in turn and ask:

  - ✓ What is this used for?
  - ✓ Can this tool be used for something other than the purpose for which it was designed?

- Emphasize that, for some types of work and to attain particular goals, there are certain specific tools that are the only ones that can perform the task. Each tool corresponds to a specific activity, even through some tools can be used for several different tasks. In any case, one needs to know exactly what one wants to do before choosing the appropriate tool.
- Emphasize also that a "tool" is not necessarily an object, but that it can also be an action. For example, fire is not an object, but, as it has already been noticed, under certain circumstances, it can be considered a tool.
- Explain then that, in the sessions to follow, several "tools" will be studied that will be chosen depending on what building block of the ecosystem we want to work on, and in accordance with objectives set by the community.
- You should take this opportunity to display the "tools" icon (showing two or three farming implements, naturally), which will symbolize the subsequent group of modules.
- Conclude this introduction by stating that the first "tool" to be studied will be the animal impact;

MODULE # 12

MANAGEMENT TOOLS

ANIMAL IMPACT

PEDAGOGIC ANALYSIS

Desired situation:

- The herding community has the ability to exploit the positive impact of livestock on soils and vegetation, in the framework of sustainable rangeland management;

Current situation:

The reality, however, is usually the following:

- The general belief (which is shared by most herders) is that an increase in the number of animals, rather than improper rangeland management, explains the deterioration of the environment.
- They are either unaware of, or underestimate, the potential impact of livestock in breaking up the layer of hardpan, and the possibility of improving the water cycle.

Disparity between current and desired situation:

The module should therefore help fill the following gaps:

- Lack of awareness of the potential positive role of animal impact;
- Lack of knowledge of how to exploit animal impact, and of the types of organization that would make it possible.

Objectives of the module:

By the end of the session, participants shall be able to explain:

- The positive impact of livestock on the percolation of rain into the soil (because their trampling breaks up the layer of hardpan and improves the water cycle);
- The positive effect of livestock on vegetation;
- How the impact of livestock is a tool like any other, and how its impact on the ecosystem depends on how it is used.

The men of the small village of Boudiouk look at images illustrating the use of animal impact as a 'tool'. (26/08)

LOGISTICS

Target group:

The choice of the target group is left up to the community and the outreach team. In this case, the target group should include at least the following:

- Pastoral management committee;
- The community's pastoral auxiliaries;
- Herders or herd guardians.

SARAR exercise utilized by the module:

Unserialized posters (Srinivasan, p. 89)

Graphical support materials:

Folder # 12

- Four posters depicting the "animal impact" during the dry season and during the rainy season
- Generic " tools" icon (showing farming implements)
- Specific "*animal impact*" icon (showing cattle running in a cloud of dust.)

Approximate duration of the module:
1 hour

IMPLEMENTATION

1. ***Presentation of the poster and utilization of the exercise*** (30 minutes)

   - Present the two series of four posters of “stampeding herds” (i.e., animals running and grazing), and ask the group to think up a story that makes sense of the images, and to tell it.
   - The idea here is to help the group establish the cause and effect relationship existing between the behavior of the animals in the pictures (i.e., large numbers of animals stampeding over the ground) and the impact that this behavior could have on the soil.
   - Encourage remarks referring to modules previously studied (e.g., about the water cycle and organic matter cycle) and in which the concept of animal impact was already introduced.

   In order to encourage participants to realize the potential positive relationship of animal impact over the vegetation, ask, for example, the following questions:
   - Can animals break the hardpan crust with their hooves?
   - Do they need to be numerous and agitated in order to do that?
   - Do animals also incorporate their droppings and plant residues into the soil?

2. ***Relationship between the impact of livestock on soils and the building blocks of the ecosystem*** (20 minutes)

   Help the group to make the connection between the behavior of the animals and the impact they can have on all the building blocks of the ecosystem, reminding participants of remarks made during previous exercises:

   - Which building block of the ecosystem is one acting upon if one breaks up the hardpan crust?
   - What building block of the ecosystem are animals affecting when they trample plant detritus and organic matter?
   - Which building block of the ecosystem is being affected when animals graze on plants?
   - What impact would the animals have if they were kept indefinitely in the same grazing area?

3. Conclusion (5 minutes)

- Ask participants to state how great the impact of animals can be on the ecosystem.
- Ask them if they have any proverbs illustrating these observations (e.g., expressions such as those existing in other pastoral societies: “the gazelle with the golden hooves” of Bedouin lore, or the Peuhl saying that “in the trail of the cow, the bush flowers anew”.)

4. Transition (5 minutes)

- Insist on the fact that, contrary to common belief, the impact of livestock is undoubtedly the most important tool we have for rehabilitating pasturelands and exploiting them properly;
- In order to be effective, however, the tool of livestock impact must be used in accordance with “time”, which will be the subject of the next session;
- Get the group to agree on an icon (e.g., cattle running in a cloud of dust) that can be used to represent “*animal impact*” during the rest of the training.

NOTE TO THE FACILITATOR

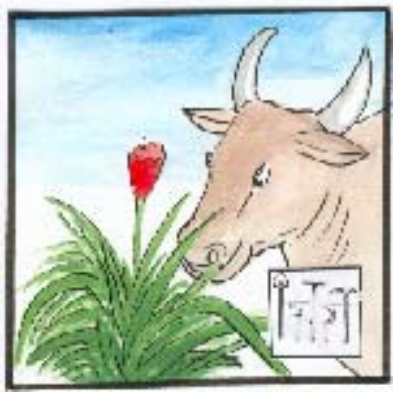
- The notion of the impact that animals’ hooves and teeth can have is generally familiar to pastoral cultures, which have many legends and proverbs illustrating this.

- If this is not the case, then what is portrayed in the posters distributed during the exercise takes on great importance.

MODULE # 13

MANAGEMENT TOOLS

GRAZING AND REST



PEDAGOGIC ANALYSIS

Desired situation

Herders understand that grazing is not bad in itself, but that, on the contrary, it is a necessary thing, provided that it is done in a rational manner.

Current situation

- There is confusion as to the difference between grazing done by a small number of animals, but on a continuous basis, and rational grazing;
- Herders are not always aware that continuous grazing results in deterioration of the grazing area;
- They are not always aware that, conversely, controlled grazing can regenerate a grazing area.

Disparity between current and desired situation

The disparity between the current situation and the desired situation derives from an inadequate comprehension of the mechanism of overgrazing and of the possibilities for regenerating grazing lands through rational management.

Objectives of the module

- By the end of the training session, participants shall be able to explain the beneficial effect of rational grazing that respects the vegetation's grazing and resting times, as opposed to overgrazing and long-term protection.

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. In this instance, the target group must consist of at least the following persons:

- Pastoral management committee
- Herding auxiliaries
- Shepherds or herd guardians

Exercise used in the module :

Guided discussion based on three illustrated sequences

Graphic supports :

Folder #13

Approximate duration of the module :

1 hour.

IMPLEMENTATION

1. Introduction :

- When introducing this module, ask participants to summarize the main points that they retained from the module on livestock impact (i.e., module # 12, covered just prior to this one.)
- What have they retained from the discussions they had on this topic?
- The modules concerning the building blocks of the ecosystem should also be mentioned.
- Make the transition by stating that they are now going to study a second tool that can be used to achieve the community's 'landscape' goal.

2. Interpretation of the three sequences of images:

✓ *Sequence of overgrazing in years 1, 2, 3, 4, 5 and 6.*

- Show the first sequence of 6 images (depicting overgrazing).
- Point out that the images show a situation evolving over six consecutive years, and ask participants to interpret them.
- If participants seem uncertain as to how to interpret the images, help them a bit by pointing out the worsening condition of one of the two plants, and the development of the other over time.
- Participants will tend to focus their attention on the aerial portions of the plants, so they should be encouraged to observe the roots as well.

- ♦ Ask participants why, under the conditions illustrated, one of the two plants withers and disappears, whereas the other flourishes and multiplies.
- ♦ Could this be due to rainfall? Or is it perhaps the impact of selective grazing on the part of livestock?
- ♦ What caused this gradual deterioration and disappearance of the more desirable fodder plant (graminea) and the rise of the less desirable fodder plant (calotropis) over the years?
- ♦ Tell participants that the issue of overgrazing is so important that it will be discussed in greater detail once they have mastered the concepts of plant grazing and resting times.

✓ *Sequence showing rational exploitation in years 1, 2, 3, 4, 5 and 6.*

- ♦ Show the second sequence of images, and ask participants once again to interpret them.
- ♦ This time, encourage participants to compare them with the first sequence (which showed overgrazing). What would explain the fact that the more desirable fodder plant has been able to sustain itself and multiply, while the less desirable plant remains under control?

✓ *Sequence showing prolonged rest period in years 1, 2, 3, 4, 5 and 6.*

- ♦ Be careful here!: Since a prolonged rest scenario (i.e., one in which an area is declared off-limits for a long time) is highly unusual under the real-life conditions of their grazing areas, participants will probably have more trouble interpreting this sequence than the other ones.
- ♦ You can therefore help them a bit by having them place this sequence alongside the preceding one, in order to better compare the changes occurring over time with the two plants.
- ♦ Have participants make a careful comparison of the growth and change of the two plants between the first and sixth years.
- ♦ Contrary to what was shown by the first sequence, the problem here is not overgrazing: the fading of the vegetation's color to gray and the tendency of the graminea to develop into a crown-shaped ring should help participants comprehend that the situation illustrated by this sequence is one of prolonged rest, or "undergrazing".
- ♦ If participants cannot come up with the answer, then the resource management specialist attending the session may give it to them.

3. Utilization of the exercise: lessons to be learned

Encourage participants to comprehend the significance of the "*grazing and resting"* tools. Keeping the three illustrated sequences spread out on the mat, ask questions such as the following:

- ♦ What does each sequence represent?

- Why does the desirable fodder plant (a) disappear in the face of overgrazing; (b) develop steadily with rational grazing; and (c) deteriorate on its own in the event of prolonged rest?
- Why does the less desirable plant (a) spread in the event of overgrazing; (b) continue to develop in the case of prolonged rest; and (c) remain under control in a situation of rational grazing?
- What relationship do the participants perceive between the time that an animal spends on a grazing area and the development of the plants there?
- What impact does the livestock's nibbling have on plants?
- Do plants react in the same way whether they are sought out by livestock or, on the contrary, left uneaten by animals?
- Does grazing has a harmful influence on plants during the dry season? If so, under what conditions? What about during the rainy season? Under what conditions?
- Does grazing need to be controlled during the dry season?
- If livestock is prevented from grazing on plants for a long period, what happens?
- While the concept of *overgrazing* is fairly familiar to herders, can they envision and accept the concept of *undergrazing*?
- What might be the advantages of a fodder plant utilization scheme that would aim at avoiding grazing those plants *too much or too little*, or, in other words, one aimed at rational utilization?
- How can one determine if grazing time is long enough or not?
- What is the long-term danger of prolonged rest periods (i.e., of declaring some grazing areas off-limits for a long time?)
- Do participants feel that grazing can be considered a tool, i.e., a means of improving vegetation? Under what circumstances can grazing be considered "rational"?

4. Transition – livestock impact

Wrap up this module by displaying the "*grazing and rest*" periods" icon, pointing out at the same time that it is the second of four "tools" that the herder possesses to improving his grazing lands. Inform participants that the following module will explore the reasons why the time that livestock spend on a single plant can also be considered a "tool."

NOTES TO THE TRAINER

- As was noted in the text, the concept of "*prolonged rest*" will likely be a new one for most participants. Special care will therefore need to be taken with the utilization of the third illustrated sequence in this module.

- At an opportune moment, the resource management specialist serving as resource person for the session should draw the participants' attention to the process of deterioration and oxidation that occurs with plants that

undergo ***prolonged rest***.

- Be careful! The sequences of six images ***depict a situation that evolves over time.*** For simplicity's sake, one may imply that the time period in question is six years. If this question comes up, point out that this same process may occur over shorter or longer periods, depending on the plant and the circumstances.

- The effects of overgrazing occur ***much faster*** that the restoration that may occur as a result of rational grazing.

MODULE # 14

MANAGEMENT TOOLS

TIME

PEDAGOGIC ANALYSIS

Desired situation:

- The herder is familiar with the importance of the *resting period* (during which the vegetation is protected from the livestock) for the vegetation between two successive bouts of grazing, and of the *grazing period*, that is the length of the animals' stay in the grazing area.
- The community has the commitment and the organization required to implement them.

Current situation:

- Lack of awareness of the relationship between time and overgrazing, which leads to the disappearance, one after another, of the most appetizing fodder plant species;
- It is impossible for a single herder to rectify this situation, which can only be managed by the community as a whole, by means of a collective discipline.

Disparity between current and desired situation:

The gap that the module should fill is therefore :

- The fact that herders do not know how to use the "time" factor. Even though they acknowledge that it should be taken into account, they are unaware of appropriate durations. When they do know these durations, they have no way of enforcing them.

Objectives of the module:

By the end of the session, participants shall be able to explain the relationships existing between:

- Overgrazing and the lack of control over time (leading to deterioration of vegetation);
- Relationship between the control of time and the regeneration of the grazing land.

The women and girls of Keur Martin engage in role-playing at the end of the module on using time as a tool. 26/14

LOGISTICS

Target group:

The choice of the target group is left up to the community and the outreach team. In this case, the target group shall consist, at least, of :

- The pastoral management committee;
- The community's pastoral auxiliaries
- Herders or herd guardians.

SARAR exercises utilized by the module:

Story with a gap (Srinivasan, p. 118)
"The story of the old woman"
Role-playing

Graphical support materials:

Folder # 14

- Sequence A: overgrazing -6 images- (uninterrupted grazing with no recuperation period)
- Sequence B: proper management -10 images- (intermittent grazing sequence)
- "*Time*" icon (a wristwatch).

Approximate duration of the module:

1 hour

IMPLEMENTATION

1. Introduction (10 minutes)

Remind participants that the module immediately preceding this one was devoted to the impact of livestock, which can be beneficial in some circumstances and disastrous in others (such as in areas around watering points where animals gather). They shall now see how the same "tool" –the impact of livestock—can be either positive or negative, depending on the "*time*" factor.

Tell the following story:

> *An old woman lives all alone. Each day she takes her donkey to get water from the well. After a year, she notices that the donkey has worn a path between her house and the well, on each side of which the vegetation has been totally destroyed, because the donkey has eaten everything and has worn away soil by passing over the same spot over and over again with his hooves.*
>
> One day, the old woman's neighbors decide to help her by bringing her enough water to last about one hundred days. They get organized and set out together with all the donkeys in the village, and bring back to her all the water she will need for three months. She is very happy.
>
> But in the course of this one day, the hundreds of donkeys from the village have wrought tremendous damage, not only along the path, but in the entire field. The grass has been trampled and the soil torn up! Once the one hundred days have passed, however, the old women and her neighbors are overjoyed to see that greenery has invaded the entire field as well as the trail, which has nearly disappeared.

Ask for the group's reaction to the story, and when the participants start to talk about plants, make a transition to the next step.

2. ***Analysis of an image: minimum resting time (for plant regeneration)*** (35 minutes)

   Put the posters A (representing continuous presence of livestock) and B (representing periodic change of location of livestock) down on the mat and open the discussion by asking participants to describe what they see in these images:

   - Where are the reserves of a perennial plant ? (Answer: in its roots)
   - What happens to a plant's roots when one cuts off its leaves ? (Answer: the roots wither)
   - How much time does the plant need to recuperate completely ? (Answer: up to the time the plant attains full maturity)
   - What happens if one does not give the plant a minimum recuperation period ?
   - Is it possible to overgraze one plant with a single animal ? How can that be explained?
   - It is said that the number of animals has to be reduced in order to avoid overgrazing. Does the group agree with that point of view ? Why or why not ?
   - What conclusion can one draw from that? (Answer: that animals must not be left too long in a particular part of the grazing area)
   - What happens if animals are kept too long in a single grazing spot ?

3. ***Conclusion: role-playing*** (20 minutes)

   In order to consolidate the ideas that the participants exchanged during the two last training sessions, tell the group that the exercise is going to finish with some role-playing. Quickly explain the idea of role-playing (i.e., tell them it's like a little skit), and ask the group to spend 15 minutes preparing it.

   - Ask volunteers to incorporate the most important ideas that they retained from the preceding exercises;
   - Ask also that they suggest one or two things that could be done, based on their new knowledge ;
   - Several characters are involved in the role-playing;
   - It lasts 5 to 10 minutes
   - Before the role-playing begins, one of the actors announces the background of the story and introduces the characters;
   - Once the role-playing is over, the facilitator thanks the audience.

4. ***Synthesis of the two modules devoted to "tools"***

- Agree with the group on an icon that can be used to represent "*time*" during the rest of the training. A picture of a wristwatch will do.
- Ask the group to recall the tools that were recently studied.
- Next, ask the group to remember the first discussion of tools. It was agreed that there was an appropriate tool for any given situation, and that tools could be used in different ways depending on what the goals were.
- In the course of the next sessions, they are going to look at another tool which, in some circumstances, can be destructive, and which can be useful in some others: the fire.

NOTES TO THE FACILITATOR

- Role-playing is an excellent outreach tool, since it enables the group to recapitulate subjects already discussed, to make a smooth transition between different groups of modules, and to get some welcome entertainment during a session or at the end of the day.

- Although they need a modicum of help and encouragement before they plunge in, most volunteers, once they are 'on stage', display a lot of imagination and enthusiasm.

- You need to be aware of how important it is for the group to comprehend the importance of time, and of giving a plant the necessary recuperation time, once it has been grazed.

- "Time" is so important that it will have already been mentioned in the "*animal impact*" and the "*grazing and rest"* modules. It will be studied again in more depth in the modules on grazing and resting times
- At that point, they shall study the period (i.e., the number of days) a plant needs to recuperate after it has been grazed, and the question of how long it can tolerate the presence of animals without suffering from overgrazing.

- These resting and grazing "times" are difficult to establish, since they vary for each type of plant, depending on the length of its vegetative phase and the season. This is why they will be studied later, in the instructional unit on planning of grazing.

MODULE # 15

MANAGEMENT TOOLS

FIRE

PEDAGOGIC ANALYSIS

Desired situation

Whatever its environment may be, the herding community considers fire as a tool that may be appropriately used under certain conditions.

Current situation

Fire (brush fires) is considered a scourge to be combated by all possible means. While it is true that fire has seldom a place as a tool under the semi-arid conditions of most WAPPP sites, it may prove highly useful in the sub-humid zones.

Disparity between current and desired situation

Herders are prey to the common herding misperception that a given phenomenon (such as fire, or livestock impact) is 'good' or 'bad' in and of itself. The study of fire as a potential "tool", even in locales where it may not be appropriate, will help reinforce the holistic concept that no "tool" is good or bad in itself. The validity of each "tool" is assessed on the basis of the ecosystem and the goals of the community concerned.

Objectives of the module

By the end of the training session, participants shall be able to describe the consequences of utilizing fire as a tool, in terms of the four building blocks of their ecosystem.

LOGISTICAL ASPECTS

This tool has not yet been dealt with by those in charge of preparing this manual, due to time constraints and also due to the fact that, until Guinea became involved in the WAPPP, fire was not a “tool” to be recommended in the ecological zone covered by the pilot program.

MODULE # 16

MANAGEMENT TOOLS

TECHNOLOGIES

PEDAGOGIC ANALYSIS

Desired situation

Tools as well as technologies are absolutely required to pass tests before they are accepted and implemented.

Current situation

Herders (and conventionally-trained technicians) have an automatic tendency to choose "*technologies*" to solve the "problems" of grazing land degradation, and to neglect "*tools*" that are immediately available, such as animal impact, grazing and rest, and time,.

Disparity between current and desired situation

There is confusion regarding the difference between a technology and a tool.

Objectives of the module

By the end of the training session, participants shall be able to explain the difference between tools that can be deployed simply by using livestock and the grazing area, and technologies, which involve the use of resources other than livestock and grazing lands.

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. In this case, the target group must include at least the following persons:

- Pastoral management committee
- Herding auxiliaries

- Shepherds or herd guardians

Of all the technologies available, the installation of water pumping equipment is the one most appreciated by women. (41/01)

Exercise utilized by the module :

Mini brainstorming session;
"Technology card game"

Graphic supports :

Folder #16;

Approximate duration of the module:

1 hour

<u>IMPLEMENTATION</u>

1. Introduction :

- Introduce this module by stating that technologies are the last item that will be examined under the instructional unit on "*<u>management tools</u>*".
- Emphasize that the "*<u>tools</u>*" studied thus far (i.e., animal impact, grazing and rest, time, and fire) have not been "objets" but instead "actions", as was pointed out at the beginning of the instructional unit.
- Display the "*<u>technologies</u>*" icon, which depicts a tractor.

2. Brainstorming session on technologies and the "technology card game"

- Introduce the brainstorming session by pointing out that everyone is familiar with various technologies, having either used them themselves or seen them used by others.
- Have participants give a quick run-down of the various technologies they are familiar with.
- For each idea, give the participant who mentioned it a card with the corresponding picture, which can be found in the stack of images contained in the folder for module #16. If a participant mentions a technology for which there is no corresponding picture, ask the person who mentioned it to make his own quick sketch of it on a blank card.
- The winner of the game is the one who has accumulated the most cards.

3. Reflection: comparing technologies with tools

On the mat, spread out before the participants the icons depicting the previously-studied instructional unit "*management tools*".
If all the available cards have not been distributed, show them and hand them out to the other participants. Reflection can now be stimulated by asking participants to compare the tools and technologies with each other.

- What is the difference between the "technologies" that were just identified and the "tools" studied previously?
- Do the "tools" involve the mobilization of external resources? (e.g., equipment, inputs, etc.)
- Conversely, can the actions involved in applying a given technology be implemented using only the resources available to the herder (i.e., his herd, his grazing land, and his labor)?

4. Exercise : Substituting "tools" for technologies

Next, affix the icons depicting the other tools (i.e., animal impact, grazing and rest, time) and technologies (i.e., the tractor) to the flip chart, or spread them out on the mat in front of the participants.

Ask participants to show, one after the other, the technology cards that they have, and have them sort them (either on the flip chart or the mat) into four separate columns, explaining the rationale for their classification. The categories might be:

- Technologies intended to compensate for the failure to respect the "time" factor (e.g., re-seeding, regeneration of shrubs, anti-erosion installations);
- Technologies that could be replaced by "grazing" (e.g., destruction of less desirable plants, fire, deliberate brushfire, etc.);
- Technologies that could be replaced by "animal impact" (e.g., loosening of hardpan, destruction of less desirable fodder plants);

- Technologies ***that cannot be replaced*** by any of these three tools (e.g., vaccination, water supply, grain milling, etc.).

Continue in this manner until all the cards have been shown and placed into one of the four columns.

5. Conclusion: lessons to be learned

Get participants to reflect on this exercise and derive its lessons :

- Given a choice between technologies and tools that exist, which can be applied most easily and repeatedly by the herder?
- Which technologies can be replaced by very simple "tools" that every herder has access to at any time?
- Which technologies cannot be replaced by the three other tools?
- Why?
- Have they considered the possibility of replacing technologies with something else?
- Do they recall any circumstances in which other herders abandoned (or were persuaded to abandon) tools in favor of technologies? Why?
- What lessons can be learned from this exercise and in particular from this discussion?
- Can they already think of some technologies that no longer seem necessary, since they can be replaced by simple tools? What are those technologies?

6. Transition to the next instructional unit

To sum up, show the participants the specific "***technologies***" icon (a tractor), and place it next to the three other tools previously placed under the generic "tool" icon.

NOTE TO THE TRAINER

- People often have trouble understanding the term "technologies". Prior to the training session, determine the most appropriate term in the community's language and make sure that it is well understood by all participants.
- The use of technologies has often been the only response of conventional herding communities for many years. It should therefore not be surprising if participants can visualize the use of technologies more readily than they can imagine using available "tools" that do not involve external resources.

INSTRUCTIONAL UNIT FIVE

TESTING GUIDELINES

Introduction to the "testing guidelines" instructional unit. (5 minutes)

Before commencing the session, make sure that you have a sieve (like a flour sifter, for example). When the group is assembled, you announces that you are going to give a little demonstration. You take the sieve, put a bit of dust into it, and sift the dust over the mat until there is a small mound of "good" dust to show. The dirt remaining in the sieve must not be discarded right away.

The following questions are then asked:

- What's in the sieve? (Answer: Twigs and pebbles we wanted to separate from the dust);
- What are we going to do with them? (Answer: Throw them away, get rid of them). At this point, one can empty the sieve.
- And what about the fine dust on the mat? (Answer: It's clean; it's what we wanted to keep).
- What is the purpose of the sieve? (Answer: it separates the good from the bad, the useful from the useless, etc.).

Explain now that together, you are going to study ways of "sifting" ideas in the next six or seven sessions. These six "tests" will serve to identify the tools and technologies that will enable them to improve the environment and to get closer to the goals the community has set for itself. Indeed, it is essential that people keep their goals in mind when they must choose from among different tools and technologies.

Ask the group what criteria they are accustomed to using when they have to decide on an action (or a tool) intended to solve problems faced by the village. The group will probably put forth one or two criteria along these lines: "Do we have the resources to carry out this or that technique?" or "Are we familiar enough with this

technique to be able to apply it correctly?" It doesn't matter now many ideas the group presents.

Then display the icon of the "***management tools***"instructional unit and indicate that the "***testing guidelines***" symbol will be the sieve used at the beginning of the session. Conclude the introduction by saying that the first test to be studied should enable them to recognize with confidence the thing that is really not working, i.e., the weak link, so as to be able to strengthen it.

Finally, announce that the group will develop the first "sieve" or ***"testing guideline***" by playing the "weak link game".

MODULE # 17

TESTING GUIDELINES

THE WEAK LINK

PEDAGOGIC ANALYSIS

Desired situation:

- Members of the herding community are familiar with identifying the weak link, or the limiting factor, in the development of its activities;
- The community can identify this weak link throughout the whole chain, from the sun to the plant (i.e., the vegetation link), to the animal (i.e. the stockraising link), and to the animal's exchange for money (i.e., the marketing link.)
- It is able to select tools and technologies that can rectify this particular shortcoming, and this one only.

Current situation:

- Lacking the ability to identify the limiting factor, herders assign the same weight to all factors, and things to be strengthened are chosen at random.

Disparity between current and desired situation:

The inadequacy that the module should correct is therefore the following:

- Herders and communities often make important decisions randomly (on the basis of habit or advice from neighbors), without making a serious effort to identify the limiting factor which, if it were corrected, would enable them to make a real improvement in the situation.

♦

Objectives of the module:

By the end of the session, participants shall be able to:

- Describe, on the one hand, the various links in the solar energy chain (i.e., sun, vegetation, livestock, exchange for money) and, on the other, the four building blocks of the ecosystem;
- Identify, within this same solar energy chain, the limiting factor, or “weak link”;
- Explain why that link, and only that one, is in need of strengthening.

LOGISTICS

Target group:

Given the overall impact of the modules that concern testing guidelines, it may be worthwhile to involve the entire community and to have all its constituencies represented, including:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

Yong people in the village play the “weak link” game, which consists of getting the weakest participant to let go of the chain. 26/01

Exercise utilized by the module:

the so-called “weak link” game

Graphical support materials:

Folder # 17

- *Variant: Building blocks of the ecosystem*
  - Four to eight small cardboard placards (measuring about 10 x 10 cm) are attached to loops of thin string about 30 cm long;
  - The icon for each of the four building blocks of the ecosystem is glued to each placard:
    - ✓ Water cycle (small cloud)
    - ✓ Organic matter (pile of cow manure)
    - ✓ Ecological succession; (rabbit)
    - ✓ Energy flow (sun)
  - When there are eight players, two copies of each icon are glued onto the placards;
  - Players put the string loops of their placards around their right wrists, and then join hands.

- *Variant: solar chain*

  Same materials, but the icons are used differently:
  - ✓ Transformation of solar energy into vegetation (shown by a sun and a plant);
  - ✓ Transformation of the plant into animal form (shown by a cow nibbling a plant);
  - ✓ Transformation of the animal into money (shown by a merchant handing cash to the herder.

Approximate duration of the module:

1 hour

IMPLEMENTATION

1. The “weak link” game: preparing the players (10 minutes)

According to the variant to be chosen (solar chain or building blocks of the ecosystem), ask those present to designate six to eight volunteers to play the “weak link” game.

- The players join hands and form a circle, keeping the placards showing the link they represent hanging from their right wrists;
- The players will first tend to form a fairly tight circle. Ask them to take a step backward, then another and another, in order to enlarge the circle until the chain is about to break;

- Specify that the players must let the chain break naturally; this is *not* a contest of strength among the participants;
- When it is clear that one of the players is going to let go of the person next to him and break the chain, stop the game momentarily and ask players to come back towards the middle to begin again.

2. Identification of the weak link*:* (10 minutes)

Resume the game, asking those present to guess which player will be first to let go, thus becoming the "weak link".

- You walk around behind each player and ask the participants who are watching to raise their hands it they think that the person behind whom he is standing will turn out to be the weak link.
- Once the "bets" are in, the players once again start to move backward.
- The game ends when the chain breaks. The person holding the placard in the spot where the chain broke is identified as the weak link.
- Ask who, among the observers, correctly identified the "weak link".

3. Strengthening the "weak link" (5 minutes)

Play the game again, but this time ask another participant to help the person who was the weak link the first time around. (He does this by standing right behind this person and hanging onto the adjacent person.)
The game stops when the chain breaks again at another spot or "weak link."

4.Utilization of the game (10 minutes)

Ask the group a few questions to help people understand what happened and the point of the exercise:

- Did the participants correctly identify the person who would let go (i.e., the weak link)?;
- If a player other than the one they bet on ended up letting go, would it have been useful to have the person they chose be helped by a comrade (i.e., to strengthen the player who turned out not to be the "weak link").
- If the guesses were accurate, is it normal for there to be a new weak link once the first one has been strengthened?

5. Discussion of the real-life situation: (10 minutes)

- *Variant: building blocks of the ecosystem:*

  Remind the group that the ecosystem functions like a set of blocks ("*ecosystem's building blocks*" .instructional unit) The blocks are interconnected, and when one block is not working properly, the chain breaks at that spot. Continue the discussion by asking, for example, the following questions :

  - Have you already thought to identify the weak link in your ecosystem when you are planning to exploit your environment?
  - What is the danger of failing to identify the weak link?
  - What is the utility of strengthening something other than the weak link, or the limiting factor?
  - Does it ever happen that one is wrong about the weak link and strengthens something that does not need strengthening?

- *Variant: solar energy chain*

  - Is there any point in improving the breed of animals in the herd when the herd is in fact unproductive because it is malnourished?
  - Is it useful to improve pasturage if it is then impossible to sell the animals under favorable circumstances?
  - Etc., etc.

6. Application to the group's environment: (10 minutes)

Give participants a few minutes to perform the following task:

- Describe the building blocks of their ecosystem (ecological succession, water and nutrient cycles,and energy flow);
- Try, amongst themselves, to identify the weak link, or limiting factor, in their ecosystem;
- Present their point of view.

7. Conclusion and transition (5 minutes)

- Ask participants to recap the most important points they retained from the game and the discussion of the weak link in their environment.
- Agree with the group on an icon that can be used to represent "*the weak link*" testing guideline during the rest of the training. (A picture of a few links of a chain will suffice.)

- Show again the "sieve" icon representing the "***testing guidelines***" instructional unit, and explain that there are five other sieves through which tools and technologies must pass. The next "sieve" will consist of making sure that this tool will correct the root cause of a given shortcoming, and not just its effect.

NOTES TO THE FACILITATOR

- The notion of a "weak link", or limiting factor, is essential in biology. Although it is a bit abstract, it is easy to get people to understand that it is pointless to correct anything if it is not the cause of a given defficiency For example, there is no point in improving the food or water of a cow, in housing her in a better barn, or in breeding her to a better bull, if she is in poor health. The weak link here is sickness, and the first thing to do is to treat that.

- Younger players tend to think that the "weak link" game is a contest of strength. This can make for an entertaining game, but it also makes the facilitator's job more difficult. Make sure that the players agree to let the chain break while they take one step backward at a time.

MODULE # 18

TESTING GUIDELINES

CAUSE AND EFFECT

PEDAGOGIC ANALYSIS

Desired situation:

In order to be able to manage its resources properly once the skills-development program has been implemented, a community must be able to do the following:

:

- They must first make sure, when they decide to apply a tool or a technology, that they are getting at the cause of a given defficiency they want to correct, instead of simply attenuating its effects
- They must therefore have developed an ability to distinguish between cause and effect.

Current situation

In reality, however, the situation is most often the following:

- There is very frequent confusion between cause and effect;
- The general tendency is to correct effects, rather than causes, since that calls for immediate, easily-applied solutions that yield quick results, rather than to rectify causes, which are deeper and demand longer-term action.

Disparity between current and desired situation

This module should therefore fill this gap by :

- Clearing up the analytical difficulty that prevents people from making the distinction between cause and effect in the choice of tools
- Persuading people that as long as root causes are not addressed, no problem can be solved, and that causes, not

symptoms, should be the focus.

Objectives of the module

By the end of the session, participants shall be able to:

- Distinguish between cause and effect in a given situation;
- Explain what happens if one addresses solely the effects, neglecting the true causes of a given situation.

The facilitator displays images from the « cause and effect » module to the villagers of Keur Martin 28/05.

LOGISTICS

Target group:

Given the overall impact of the modules that concern testing guidelines, it may be worthwhile to involve the entire community and to have all its constituencies represented, including:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

SARAR exercises utilized by the module:

- Adaptation of the "critical incident" exercise (Srinavasan, p.110)

Graphical support materials:

Folder # 18

- About a half-dozen cardboard cards (postcard format) representing various objects

- "*Cause and effect*" icon (a hammer).

Approximate duration of the module:

30 minutes

IMPLEMENTATION

1. ***Introduction to the module*** (5 minutes)

   Introduce the session by reminding those present of the first "sieve" that was studied, i.e., that of the "*weak link*". This session will look at a second "sieve", i.e., "*cause and effect*".

4. ***The "cause and effect" game*** (5 minutes)

   - Introduce the game by displaying the image of a person being hit by a hammer, and make sure that everyone has understood the image.
   - Make sure that the group has clearly understood that the "cause and effect" picture game *is not* an unserialized posters exercise, but that the idea is instead to choose, from among the images, the one that represents the best solution to the person's problem.
   - Ask a volunteer to put the image cards down, one by one, on the mat in front of the group.
   - Next, ask participants to say which card(s) show a solution that might solve the person's problem.

5. ***Utilization of the game*** (20 minutes)

   Help participants to make the connection between the outcome of the game and the importance of the testing guideline, by asking the following questions, for example:

   - Why the card showing two hands that prevent the arm from continuing to administer hammer blows, is the right one?
   - As long as one keeps hitting the person over the head, it is possible to solve his problem? Why?
   - What conclusions can one draw from this game?

6. ***Conclusion: relationship between the game and real life*** (5 minutes)

   - Can the group cite examples of situations in which there was an obvious confusion between a problem's cause and its effects?
   - Why is the distinction between cause and effect so important?

- For example, is the replanting of vegetation on a pasture where it has been destroyed by poor grazing management going to solve the problem if one does not, first of all, better control herd movements? Why?
- What is the danger of failing to make the distinction between cause and effect? (Cf. the second point of the “current situation” under the pedagogic analysis)
- Lessons to be drawn from the exercise in terms of attitude and behavior.

7. Transition

- ♦ Agree with the group on an icon that can serve to represent the “*cause and effect*” test during the rest of the training. (A hammer will do, since everyone will readily recall the hammer blows.)
- ♦ Now that the group has studied two of the six “sieves” to be used when making a decision, the next “sieve” will help them see how the envisaged tool can affect the whole ecosystem.

MODULE # 19

TESTING GUIDELINES

ECOSYSTEM AS A WHOLE

PEDAGOGIC ANALYSIS

Desired situation:

In order to be able to manage its resources properly once the skills-development program has ended, a community must be able to :

:

- Take into account, in choosing tools and technologies to be implemented, their impacts upon the various building blocks of the ecosystem, on ecological succession and on the stability of the ecosystem.

Current situation

The reality, however, is more often that :

- New tools and technologies are chosen without regard for their adverse impacts on the overall ecosystem (e.g., pesticides, monoculture, etc.)

Disparity between current and desired situation

The module is therefore intended to fill in the following gaps:

- Ignorance of these tools' negative impacts on the ecosystem;
- Disregard of these effects, even when they are known.

Objectives of the module

By the end of the session, participants shall be able to :

- Explain the impact of the tool on the building blocks of the ecosystem;

- Explain how certain decisions can have a negative impact on the ecosystem;
- Explain why one must first study how the ecosystem reacts to the application of each tool.

LOGISTICS

Target group:

Given the overall impact of the modules that concern testing guidelines, it may be worthwhile to involve the entire community and to have all its constituencies represented, including:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

SARAR exercises utilized by the module:

the "*whole ecosystem*" game

Graphical support material

Folder # 19

- The four icons representing the four building blocks of the ecosystem used previously in instructionalunit three: "*ecosystem's building blocks*".

Duration of the module:

30 minutes

IMPLEMENTATION

1. Introduction: (10 minutes)

The focus here is the third "sieve" to be studied. It is particularly important because one has to be sure that the tool or technology that one plans to use will actually correct the "weak link" identified among the four building blocks of the ecosystem.

You might explain the game in the following way: the group will test a few tools, gauging the impacts they might have on each building block of the ecosystem. How ? By letting the four building blocks of the ecosystem speak for themselves.

2. ***The "Ecosystem impact" game:*** (10 minutes)

- Ask for four volunteers to represent each block of the ecosystem. Give each one the icon corresponding to the block he represents. He will hold the icon in front of him during the game.
- Agree with the group on specific "weak links" which should be addressed with each of the ecosystem's building blocks, one after the other;
- Ask the members of the group who wish to test a given tool to address this specific "weak link" to come up and present the tool he recommends before each block, explaining why this tool should help reinforcing the "weak link" and attain the desired goal.
- Each block then must explain why he does or does not accept the tool.
- Go through two or three "weak links" before concluding the game.
- Invite applause and thank the players.

3. ***Utilization and conclusions: connection with real life*** (10 minutes)

Induce participants to make the connection between the game and the importance of the testing guideline, by asking the following questions, for example:

- What happened with the first tool that was suggested? Why was it accepted/rejected? (ditto with the second and third tools.)
- What might happen if one applies a tool without first considering its impact on the ecosystem?
- Which part of the goal is this test particularly relevant ? (Answer: landscape goal).
- What lessons can one learn from this module in terms of attitudes and behaviors ?

Can the group give examples of situations in which the effect of a tool on the overall ecosystem was not taken into account? What happened? (Examples: use of pesticides leading to the disappearance of insects, then birds, etc.)

4. ***Transition***

- Agree with the group on an icon that can stand for the "*ecosystem as a whole*" sieve during the rest of the training.

The symbol of the four building blocks of the ecosystem – the four pillars of a dwelling – is mentioned again.

- Tell the group that the next "sieve" will allow them to be sure that the resources (e.g., money and labor) devoted to deploying the tool or technology under consideration would yield more benefit than if they were used to put another tool ortechnology in place.

NOTES TO THE FACILITATOR

- The purpose of these notes is to provide two examples showing how two different tools (i.e., fire and animal impact) can be subjected to the "*ecosystem as a whole*" testing guideline, so as to help you better control the performance of this module.

- The question the group must ask itself is this: how will each of the building blocks of the ecosystem react to the use of a particular tool? The following are only examples, since the reaction of the blocks of the ecosystem depends on each particular situation and on the landscape goal being pursued.

- ***Example 1: Fire:***

In arid regions, fire "consumes" plant matter and exposes the soil (creating bare earth). This soil, when acted upon by rain and wind, is subject to erosion and can be carried away by torrential runoff. In addition, fire heats up the soil, destroying micro-organisms needed to decompose organic matter. Thus, in most cases, fire has a negative impact on the blocks of the ecosystem in arid regions.

- ***Example 2: animal impact***

Animals have the ability to break up the hard-packed soil crust with their hooves, thus encouraging water percolation and improving the water cycle. Livestock also enriches the cycle of organic matter by contributing manure. However, if animals are kept too long in the same part of the grazing area, they will tend to compact the soil and overgraze the plants.

MODULE # 20

TESTING GUIDELINES

ADDITIONAL RESOURCES

PEDAGOGIC ANALYSIS

Desired situation:

- Herders are able to gauge the relative efficacy of apportioning additional resources (e.g., labor, money) to the various aspects of its activity, and to act accordingly in choosing tools and technologies.

Current situation

The reality, however, is often the following :

- Decisions concerning the allocation of additional resources (or marginal resources, in economic parlance) are made empirically, without regard for the relative efficacy of this allocation in terms of overall activity.

Disparity between the current situation and the desired situation

This module is therefore intended to fill the following gaps :

- Ignorance of the nature of limiting factors and of benefits resulting from the strengthening of each one;
- Inability to identify the best opportunities for allocating resources.

Objectives of the module

By the end of the session, participants shall be able to:

- Describe the various possible ways to allocate additional resources (e.g., improvement of vegetation, of stockraising, or marketing);
- Identify the allocation that would appear to yield the greatest benefit.

Volunteers playing the « additional resources » game stand behind the investment they would choose, waving their cash. 28/09

LOGISTICS

Target group:

Given the overall impact of the modules that concern testing guidelines, it may be worthwhile to involve the entire community and to have all its constituencies represented, including:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

SARAR exercises utilized by the module:

Adaptation of the ”pocket chart" exercise (Srinavasan, p. 93)

Graphical support material

Folder #20

- About a half-dozen images (A4 format) of what might be acquired with additional resources;
- About twenty black and white photocopies of bank notes
- “*additional resources*” icon (bank notes.)

Approximate duration of the module:
1 hour

IMPLEMENTATION

1. ***Introduction to the game*** (10 minutes)

- Explain to the group that the exercise consists of continuing the review of "*testing guidelines*" (or “sieves”) that must be taken into account in choosing how to deploy new resources (e.g., labor or money) in the area of livestock raising or any other activity.
- Ask participants to recall a recent experience in which they had to decide to adopt a new “tool” involving a substantial amount of time or money;
- The exercise aims to demonstrate how important it is to make accurate calculations and to justify one’s decision correctly. To the extent that resources are rare, care must be taken that they are used for the deployment of the cheapest tool, in relation to the anticipated results.

2. ***Investment game*** (10 minutes)

- First, agree with the group on the nature of the limiting factor (or weak link) that needs to be corrected in order to move closer to the community’s goal. For instance, if one considers the *solar energy chain*, does plant cover needs to be improved? What about herding? The sale of animals? Or, if one considers the *blocks of the ecosystem,* which block is the deficient one?
- If participants are hesitant, suggest different ways of providing drinking water to animals:
  - ✓ With a bucket
  - ✓ Using animal power
  - ✓ Manual pump
  - ✓ Wind pump
  - ✓ Motor pump, etc…
- Next, present the images representing the various ways of using additional resources, and choose those that are most closely associated with the weak link that has just been selected for improvement, explaining that these images represent the various possible options in a given situation.
- The exercise consists of examining together these different investment possibilities, in order to decide which tool is cheapest and will produce the greatest impact on the weak link that was identified at the beginning of the game.

- Ask four volunteers to stand facing the group, and give each volunteer one of the tool images, which he will hold up in front of him.
- Ask a few volunteers to play the role of “investor”, to whom a few copies of bank notes are given. Each one lines up behind the tool he feels is the best, given both the goal being pursued and the relative efficacy of the proposed tool.
- Once the “investors” have made their choice, ask each one in turn to give the reasons for their choice.
- Go into more detail if necessary by asking questions that might point up “hidden” costs that the “investors” may have overlooked.

3. Utilization of the game (30 minutes)

Help participants to make the connection between the outcome of the game and the importance of the testing guideline by asking the following questions, for example :

- Which investors chose the right tool? Why was it the right one ?
- What consequences await investors who have underestimated costs or overestimated benefits ?
- An example: is the purchase of an additional animal most justified if one has assessed that the weak link is inadequate productivity of grazing lands during the dry season ?

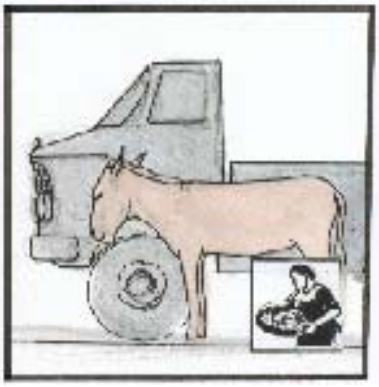
4. Conclusion and transition (10 minutes)

- Can the group provide examples of situation in which a decision was made to adopt a new tool without taking the “*additional resources*” testing guideline into account, and in which this decision resulted in a failure ?
- Agree with the group on an icon that can stand for “*additional resources””* during the rest of the training. A picture of bank notes may suffice.
- Remind the group that they have now studied four of the six “sieves” that must be used before a decision is made to adopt a new tool. The following “sieve” will consist of gauging the extent to which the deployment of a new tool involves the use of external resources whose sustainability is not certain.

MODULE # 21

TESTING GUIDELINES

EXTERNAL DEPENDENCY AND SUSTAINABILITY



PEDAGOGIC ANALYSIS

Desired situation:

In order to be able to manage its resources adequately upon completion of the capacity-building program, the community must have the following capability:

:

- ability to base decisions concerning the adoption of tools and technologies on the community's capacity to ensure their implementation, their operation and their maintenance.

Current situation

In reality, however, the situation is often the following :

- Herding communities are inclined to accept new infrastructures and equipment (in the form of subsidies), without figuring out how they will continue to be used in the long run;
- There is a fascination with sophisticated equipment, which doen't always take into account their sustainability;

Disparity between current and desired situation

The gap that must therefore be bridged by means of this module is the following:

- The community is not sufficiently committed to a dynamic of autonomy and self-management.

Objectives of the module

By the end of the session, participants shall be able to:

- explain how they intend to ensure the sustainability of the investments they envisage, using their own resources instead of relying on external support (e.g., subsidies).

LOGISTICS

Target group:

Given the overall impact of the modules that concern testing guidelines, it may be worthwhile to involve the entire community and to have all its constituencies represented, including:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

The men of the small village of Keur Martin (Senegal) ponder the meaning of pictures distributed to illustrate the module: a donkey and a truck. (29/06)

SARAR exercises used in the module:

Structured exercise

Graphic supports:

Folder # 21

- Images (in postcard format) representing a small truck, a donkey with a cart, and the things needed to make each one work.
- "*External dependency*" icon (showing a small truck and a donkey)

Approximate duration of the module:

45 minutes

IMPLEMENTATION

1. ***Introduction to the game*** (10 minutes)

   - Begin by reminding the group that they are now going to study the fifth testing guideline, or "filter", which involves determining the extent to which a new tool, and particularly its use over time, should not be excessively dependent upon external support and/or financing;
   - Show images of the donkey and the truck, emphasizing that each of these "technologies" requires supplies and maintenance in order to function ;
   - Ask participants to identify what is needed to maintain each "technology";
   - For each new need mentioned, show the corresponding (postcard) image. For example, the group will mention :

For the donkey	For the truck
Bales of hay Water	Tires Lubricant Fuel Motor oil Driver Spare parts Insurance Registration Etc.

2. ***Using the game*** (30 minutes)

   Get the group to see the connection between the responses provided and the "*external dependency*" testing guidelines, by asking, for example, the following questions :

   - How much might it cost to maintain the truck?
   - How much might it cost to maintain the donkey?
   - Where do the funds for the donkey's maintenance come from? What about the truck?
   - What happens if spare parts or fuel are no longer available?

3. ***Conclusion: linkage with the actual situation*** (5 minutes)

   - What conclusions can one draw about external dependency, in connection with the choice of tools?
   - Can the group give examples of situation in which a community failed to take external dependency into account? What were the consequences?

- Next, agree with the group on a symbol or "icon", e.g., the images of the small truck and donkey, that will stand for "*external dependency and sustainability*" for the rest of the outreach exercise.

4. Transition to the next module (5 minutes)

- Inform the group that the last testing guideline, or "filter" that should be applied to any new tool or technology before it is used is one that is very often forgotten, with serious repercussions: Has it occurred to them to wonder whether this new tool or technology is compatible with the culture of the society concerned ?

MODULE # 22

TESTING GUIDELINES

SOCIETY AND CULTURE

PEDAGOGIC ANALYSIS

Desired situation:

In order to be able to manage its resources adequately by the end of the capacity-building program, a community must make sure that:

:

- its decisions take into account, and are compatible with, the community's social characteristics (i.e., traditions, customs, etc.) and that they contribute to greater social equity.

Current situation

In reality, however,

- community decisions are not always based on the opinions of all constituencies.

Disparity between current situation and desired situation

The gap that must therefore be bridged by means of this module consists of the fact that:

- traditional societies do not always consider the opinions and interests of the community's various stakeholders (e.g., women, young people, certain ethnic groups, castes, etc.), and particularly those of other communities (e.g., neighbors, transhumant herders, etc.).

Objectives of the module

By the end of the session, the participants shall be able to:

- identify the actors and social groups within the community that would be affected by the proposed tool or technology;

- evaluate the acceptability of a given action to the various stakeholders and social groups affected, both inside and outside the community.

LOGISTICS

Target group:

Given the overall impact of the modules that concern testing guidelines, it may be worthwhile to involve the entire community and to have all its constituencies represented, including:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

SARAR exercises used by the module:

Role-playing, with or without "*maxi-flans*" characters;

Graphic supports:

Folder # 23

- If the role-playing is done with large character's faces (maxi-flans), about a half-dozen of those;
- "*Society and culture*" icon (villagers gathering under a tree);

Approximate total duration of module:

45 minutes

The facilitator stands apart from the group with the role-players, to work out the roles of each character with them . (28/12)

IMPLEMENTATION

1. Introduction (5 minutes)

This is the sixth and last testing guideline, which unlike the others, is not purely technical, but nonetheless very crucial. Explain once more the concept of role-playing (as a "little theater") and indicate that a brief story will first be told to provide the backdrop for the role-playing.

2. Role playing (15 minutes)

- *Subject of the role-playing*

One day, the herders of the little village of Niangaré decided they were tired of seeing their pastureland steadily deteriorate and their animals become thinner and thinner because they had less and less fodder to graze on.
The village chief sent his eldest son to the nearest town, telling him to get some answers from the Administration or some other organization.
The son returned to the village with a very nice technician who spent a day in the village and declared that Niangaré's grazing lands were deteriorating because they were supporting too many animals: i.e., not only those belonging to the villagers, but also those belonging to transhumant herders who passed near the village on their way to and from the salt licks.
The technician advised that Niangaré's pastures be fenced off with barbed wire, which his NGO would be prepared to finance.
The villagers accepted the fencing-in of their pastures enthusiastically, hoping that this would be the solution to all their problems. They were so happy that they forgot to say that the transhumants who crossed their pastures had been doing so for generations, and that they had always enjoyed very cordial relations with them.
The week after the fence was installed, a herder who was not from the village fought with the son of the village chief, who wanted to prevent him from entering the pasture.
The following week, the fence was found destroyed and the fence posts pulled out, up to the boundary with the neighboring village.
By the third week, the conflict had grown so serious that the District Commander had to pay a personal visit to the village to settle the issue.

- *Characters in the role-playing exercise*

Group members shall assign the following roles:

- the village chief, who explains that the fence was installed to protect the pastures;

- his son, who appears not to know, or not to remember, that the neighbors were accepted by the villagers in the past ;
- the herdsman from the neighboring village with whom he quarreled, who says that he has always grazed his animals on this pasture and that no one can prevent him from doing so ;
- the district commander who tries to resolve the problem;
- possibly, the technician from the NGO that financed the construction of the fence.

- *Preparation for role-playing*

Outline the proposed scenario to the group of "actors", and ask them to work out amongst themselves who will play which character. Once the “actors” are identified, take them aside and explain each one’s role. Provide clarification, if needed, and give them 15 minutes to prepare their lines.

- Before the "actors" begin to perform, ask them to state which characters they are going to play.
- Clearly identify who is playing which role, so that the audience can follow the plot easily .
- Ask the "actors" to perform for about 5 to 10 minutes.
- When they have finished, thank them and have the “audience” applaud them.

3. Using the role-playing exercise (20 minutes):

Get the group to understand the connection between the message of the role-play and the “*society and culture*” testing guideline, e.g., by means of the following questions:

- What happened in the story?
- What started the conflict?
- Why did the transhumant herders destroy the fence?
- Would it have been better if the community of Niangaré had talked to the transhumant herders before putting up the fence?
- What happens when one chooses a new tool or technology and forgets to take into account the population’s mores, customs, concerns and experience?

4. Conclusion: linkage with the current situation (5 minutes)

- Can the group give a few examples of situations in which the choice of new tools or technologies were not subjected to the "*society et culture*" filter?
- What were the consequences?

- Agree with the group on a symbol or “icon” e.g., the image of a village meeting under a tree, that will be used to represent "*society and culture*" for the rest of the outreach cycle.

5. Transition to the next module (5 minutes)

- Congratulate the group on having covered the six testing guidelines or “filters” that will play such an important role in the future, when they will need to choose the best tools or technologies to be implemented, aiming at managing their resources in accordance with their own goals.
- Point out to them that many more criteria have been covered than they had initially imagined when the “filtering” of ideas began .
- Acknowledge that this is a complex process that demands quite a bit of thought, and requires that one takes into account many factors that are usually forgotten;
- Tell them that this is why the following session will study how one might, in an entertaining way, come up with a method of ensuring that *all* "filters" are used appropriately to ensure that the decisions made are the best ones possible.

MODULE # 23

TESTING GUIDELINES

SYNTHESIS

PEDAGOGIC ANALYSIS

Desired situation:

In order to be able to manage its resources adequately by the end of the capacity-building program, a community must be able to proceed in the following manner:

- Each time it finds itself in a position of having to make a decision or choose a new tool or technology, as well as the corresponding investments, the community must automatically resort to the battery of six testing guidelines (a.k.a., the “filters”) that it has learned to use.

Current situation

In reality, however, the situation is often very different:

- Actions to be undertaken are chosen randomly, and even in cases where one or two criteria are taken into account, this is not the result of a rigorous methodological approach.

Disparity between current and desired situation

The gap that must therefore be bridged by means of this module is the following:

- Lack of awareness of the need to use the battery of testing guidelines so as to gauge the relative merits of the various tools and technologies that might be used.

Objectives of the module

By the end of the session, the participants shall be :

- capable of explaining why it is necessary to test new actions before deciding to implement them;
- familiar with the battery of testing guidelines and willing to use them systematically.

Young people hand out envelopes containing the various tests to members of the group who want to decide on the acceptability of one tool versus another. (29/07)

LOGISTICS

Target group:

Given the overall impact of the modules that concern testing guidelines, it may be worthwhile to involve the entire community and to have all its constituencies represented, including:

- men and women;
- young people and the elderly;
- herders and farmers, etc.

SARAR exercise used by the module:

Pocket chart (Srinivasan, p. 93)

Graphic supports:

Folder # 23

- 6 envelopes placed next to each other so as to present a “pocket chart";
- the 6 icons representing the testing guidelines for the choice of new tools or technologies ;

- about forty small pieces of paper (business card size).

Approximate duration of the module:

1 hour

IMPLEMENTATION

1. Introduction (10 minutes)

- Explain to participants that, up to now, they have studied the six testing guidelines, or filters, with which every new tool or technology must be evaluated before being adopted, in order to be sure that it will further their goals;
- Since using these testing guidelines require a lot of work and the manipulation of a lot of information, an exercise has been developed to ensure that none of the testing guideline is forgotten;
- The following module thus represents the synthesis of the six previously-studied modules, and will organize them in such a way as to be sure that each has been adequately covered.

2. "Pocket chart" exercise (30 minutes)

- Ask the group to name the six testing guidelines or "filters" that they have studied. Each time a new test is cited, ask the participant to explain it briefly. If the explanation is correct, hand that person the envelope bearing the icon of the test in question.
- Once the envelopes illustrating the six testing guidelines have been distributed, they can either be attached to the flip-chart easel or taped to the wall, or six participants can be chosen to hold them out in front of them, so as to present what we shall call a "pocket chart". The main thing is for everyone to have an unobstructed view of this.
- At this time, an agreement will need to be reached on the "*weak link* " to be reinforced by means of the tool to be evaluated, either within the *solar chain* (e.g., vegetation, animals, money), or one of the four *ecosystem's* *building blocks* (cycles of water, nutrients, succession, overall ecosystem), or yet again at the level of the three hearth's stones of *the holistic goal* (quality of life, production, landscape).
- The group must be aware of the fact that no tool can be evaluated in and of itself: it must instead be evaluated in relation to the community's holistic goal.
- Identify, from among the tools and technologies considered under the preceding exercises, those that could be tested as a function of this goal: e.g., purchase of a cow, or a tractor,

buiding a fence, using livestock impact, performing vaccinations, purchasing fodder, etc.

- Ask participants to select one of these tools, or another of their choosing, and explain how it will be subjected to the six testing guidelines. The procedure (which may be repeated several times) is the following:

1. Ask for 10 volunteers (players) for this exercise, and give each player six small pieces of paper.
2. Ask the players to take turns coming up to the pocket chart and assessing the chosen tool or technology through each of the six testing guidelines in turn. If the player thinks that the tool or technology has passed a test, he puts one of his pieces of paper into the corresponding envelope. If he does not think it passes the test, he does not put a piece of paper into the envelope, but keeps it instead.
3. Once the 10 players have given their point of view for the six tests, count the number of slips of paper deposited in each envelope.
4. It is obvious that the proposed tool or technology has not passed the tests if it has been approved by less than two or three players out of ten. Ask them to explain why they rejected it.
5. If the group hesitates (e.g., half of the group feels that the tool or technology has passed the test, while the other half disagrees) ask the players to discuss amongst themselves and to come up with a group decision.
6. The tool or technology is accepted when it has passed the six tests.

3. Conclusion: linkage with real life (15 minutes)

- Was it easy or difficult to approach the testing guidelines this way ?
- Which testing guideline is the most difficult to master? Why?
- What happens when one applies a tool without having tested it?
- How does a reflection process like this one make decision-making easier?
- Was the tool chosen as a function of the goal (quality of life, production, landscape) defined and pursued by the community?
- Has anyone in the group ever used a technique of this kind before making a decision in real life ?
- What lesson can one derive from this exercise ?

4. Transition to the next module (5 minutes)

- Conclude by reminding participants that the “icon” of the*” testing guidelines”* synthesis module is, of course, the one that represents the testing guidelines instructional unit:, i.e., the filter.
- Tell that group that they have now studied five instructional units covering:

    - The "*whole to be managed”*
    - The "*holistic goal*" (represented by the three stones on the hearth)
    - The " *ecosystem’s building blocks* " (the four pillars of the house)
    - The six "*testing guidelines*" (the filter)

The group is now ready to use these new instruments to plan the utilization of their resources, which will be the subject of the following instructional units.

INSTRUCTIONAL UNIT SIX

MANAGEMENT PRINCIPLES

Introduction to the "management principles" instructional unit : (5 minutes)

Bring the group over to a brick dwelling near the meeting place and observe how it is constructed :

- Why do people build walls by putting one brick atop another?
- Can a house be built with only one or two bricks?
- Can one stop construction after having placed two or three rows of bricks and consider the house to be finished? Why not?

Now explain that the next five training sessions will be devoted to principles that must be thoroughly understood if one wants to manage natural resources in a sustainable manner.

- Display the "*management principles*" icon (a section of brick wall, as it happens) and explain why this image was chosen;
- Conclude the introduction, stating that they will begin by identifying plants that they would like to see re-appear and/or proliferate on the grazing lands, in accordance with the community's landscape goals.

MODULE # 24:

MANAGEMENT PRINCIPLES

PLANTS TO BE PROMOTED

PEDAGOGIC ANALYSIS

Desired situation

The herding community chooses the forage species that it wishes to promote, and manages them in accordance with this goal.

Current situation

In most cases, herders regard the decline of some forage species, with the gradual disappearance of perennial species and their replacement by annual species, as an inevitability over which they have no control.

Disparity between current and desired situation

Lack of understanding of the phenomena of succession and regression of vegetation.

Objectives of the module

By the end of the training session, participants shall be able to identify the forage plant species whose expansion would improve the quality of their grazing lands, and shall incorporate them into their future landscape goal.

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. The target group must include representatives of at least the following:

- the pasture management committee
- auxiliary herdsmen
- shepherds or cattle drivers

Exercise used by the module :

Brainstorming;
Evaluation grid along the lines of the “pocket chart” (Srinavasan, p.93)

Graphic supports: :

Folder # 24

Approximate duration of the module :

1 hour

A participant sketches the vanished plant that he would like to see return to the grazing area. This drawing will be posted on the "pocket chart". (33/17)

<u>IMPLEMENTATION</u>

1. Introduction :

This introduction consists of recalling two earlier modules: namely, the “*<u>Landscape goal</u>*” module (# 7) and the "*<u>Ecological succession</u>*" module (# 11).

Indicate that the discussion will once again focus on the goal that the community set, at the very beginning of the training session, in terms of the future landscape that it would like to promote. Ask participants to summarize what was envisaged at that time (or, if necessary, bring out the community goal formulation form that was supposed to be filled out (in the local language) at the end of the second instructional unit on the “*<u>holistic goal</u>*”. Ask participants to reflect a bit and imagine what their future landscape might look like. The following questions may be asked:

- Which herbaceous ***annual*** species do they want to see in their landscape?
- Which herbaceous ***perennial*** species do they want to have in their landscape?
- Which ***shrubs*** would they also like to see develop?
- Ask participants if the plants that they want to promote are among those that they identified as "vanished species" at the end of the "***ecological succession***" module (#11).

2. Brainstorming on plants to be promoted :

Remind participants that when they agreed on their "***landscape goal***", they included a few species of plants, and indicate that the time has come to see what is feasible. Among the species cited, which ones would the participants like to ***promote*** , i.e.., which ones would they like to see re-appear and/or develop?

An alternative to the use of ready-made images of plants is to ask participants to sketch the plants that they designate. Even if the drawing is clumsy, it will be more readily accepted if they have drawn it themselves.

Be sure to emphasize the ***promotion*** aspect. Allow participants discuss for five minutes, and ask them to name the species. Then place pictures of the six broad plant categories available on the pocket chart, which is on the mat in front of the participants. For each species cited, ask participants to choose the picture that most closely resembles the species cited (even if there is not much resemblance). Keep these images beside you for use during Step 5.

3. Brainstorming on plant selection criteria:

Ask participants: why would they like to resuscitate the plants that they cited, and not others? What would these species contribute that is particularly important to them?

Participants will probably put forth some arguments in favor of the plants of their choosing. If they do not, stimulate discussion with some questions, such as :

- Are they good food for livestock ?
- Do they help prevent soil erosion ?
- Do they continue to grow once the rainy season is over?
- Are they adapted to local conditions and drought-resistant?
- Are they also useful to people (e.g., by supplying fruit, seeds, medicines)?
- Do they produce abundant fodder?

For each idea, show the corresponding image, which is also contained in Folder # 24. (Remember to include an image showing the plant's adaptation to local conditions).
If other reasons are given, quickly sketch a new image to represent them. The exercise will probably be halted after 5 images or so, after which the pocket chart (Step 5) would become too cumbersome to handle.

4. Pocket chart: choice of plants to promote

Explain to participants that at this point they are to consult the first list they made, i.e., the one listing plants to be promoted. Ask this question:

- "Do the plants that they have chosen allow them to achieve the landscape goal that they set for their community?"

Explain that the idea is now to proceed with an evaluation and a plant-by-plant selection, using the pocket chart.

- Attach a large sheet of paper, on which the pocket chart arrangement has already been drawn, to the flip-chart easel. (It is not necessary to attach the pockets themselves; squares drawn on the paper will suffice.)
- Spread out the images of the potential plants along the vertical axis, and the selection criteria along the horizontal axis.
- Next, ask participants to study the table carefully, to discuss amongst themselves for a few minutes and to make a decision about each plant according to each criterion.
- Ask a participant to play the role of "secretary", and if the plant meets one of the selection criteria, to check off the corresponding box.
- Proceed in this way for each plant and each criterion, until all have been examined.
- Let participants contemplate the results for a minute.

It sometimes occurs that the participants feel that all the plants meet all the selection criteria equally. In that case, carry out another selection round, this time asking participants to use a different color felt marker for the plant which, for a given selection criterion, is better than all the others.

5. Utilization : Plants to be promoted according to the landscape goal

Encourage participants to ponder the results of this exercise by asking, for example, the following questions:

- Are you surprised by the results? Would you have chosen them without going through the selection criteria?
- Do the species really correspond to your vision of a future landscape?

- Have you ever tried to “promote” a given plant, i.e., have you ever used grazing lands with the intention of fostering the development of a given species ?
- Have you ever heard of a project or program that tried to do this?
- What were the results? In your opinion, why did this attempt succeed (or fail)?

6. Transition to the “minimum resting time” module

If participants have no further questions or comments on the results of the exercise, announce that it is time to go on to the next session, emphasizing that the first "brick” of the principles of management has been put in place. Indeed, they have now chosen the species to be promoted in accordance with their objectives and their landscape goal. Display the icon representing the "*plants to be promoted*" module and place it next to the first one.

To expand on the metaphor of the brick wall, if we want to have a solid house, we must of course use sturdy materials, just as one must be able to count on productive and hardy fodder species in order to have a stable ecosystem.

We shall now study some concepts that will help manage grazing lands in such a way as to promote the forage species they have chosen .

NOTES TO THE FACILITATOR

- During the exercise, and upon its conclusion, stress the difference between annual and perennial plants, and their respective characteristics. Explanations will be provided, when needed, by the resource management specialist of the outreach team.

- It must also be clearly understood that, in encouraging the re-emergence of perennial plants, for example, one is not eliminating annuals which, as we shall see, are very resilient and can be relied upon to continue to develop.

MODULE # 25:

MANAGEMENT PRINCIPLES

MINIMUM RESTING TIME

PEDAGOGIC ANALYSIS

Desired situation

- The herding community plans the utilization of its grazing lands.
- It implements this program on the basis of its own observations of the evolution of vegetation over time.

Current situation

Herders' observations of the condition of vegetation do not affect the way in which they manage their herds and grazing lands.

Disparity between current situation and desired situation

- Herders do not seek to determine the minimum resting time (mRT) of forage species that they would like to resuscitate.
- In any case, their individual grazing strategies do not allow them to respect these mRTs.

Objectives of the module

By the end of the training session, the target group shall be able to determine the mRTs of the plants it would like to resuscitate, during their growing season (i.e., the rainy season) as well as during their dormancy (i.e., the dry season).

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. The target group must include representatives of at least the following:

- the pastoral management committee

- ♦ auxiliary herdsmen
- ♦ shepherds or cattle drivers

Exercise used by the module :

Semi-structured exercise based on a sequence of 10 illustrations.

Graphic supports: :

Folder # 25

Approximate duration of the module :

1 hour

Participants attentively study the accordion poster illustrating the mRT and the MGT. (34/02)

IMPLEMENTATION

1. Introduction :

Approach this module by emphasizing that, among the plants that the herders would like to promote in their future landscape, some have already been gone for years. Ask participants the following questions:

- ♦ Why did they disappear? What contributed to their disappearance or caused it ? Drought? Overgrazing? Human intervention? Other factors?
- ♦ How can one *promote* the species considered important to the community landscape and to its specific village land management objectives? Can one, for example:

    - cultivate these plants over large areas;
    - propagate them in nurseries;

- use fertilizer;
- protect them from animals;
- keep outsiders from using the grazing lands;
- harvest them, etc.

2. Recalling the "Time tool" module

Acknowledge that there are indeed many technologies that could foster the multiplication of this plant, but indicate that, in the next two modules, the discussion shall be limited to the care that can be taken in exploiting the plant itself, as mentioned in the "*Time*" module (# 14).

3. Use of the 10 sequential images

Display the series of 10 images (plants/cow) contained in Folder #14 for this module, and ask participants to look at it carefully and interpret what it shows. Suggest that they observe in particular what happens in the aerial part of the plant, as well as at the root level. Indeed, the roots play an essential role in the processes of:

- reconstitution of the aerial portion when the plant is grazed;
- accumulation of reserves when the plant is protected from animals.

One might then ask the following questions, for example:

- With reference to the "*time*" module , what happens when one exposes the fodder plant to continuous grazing by animals? (Answer: It will obviously become exhausted and disappear);
- From the time that the plant ceases to be exposed to grazing, how much time does it need to recover its original size and for its roots to reconstitute their reserves?
- Be sure to show that this recovery time is represented in the sequence, by images "without the cow", i.e., that we are talking about the time elapsing between when the cow stops grazing (4th image) until the cow is shown once again standing over the plant which has regained its original size (8th image);

Explain that they shall call this interval the "*minimum resting time*", or mRT.(In order to facilitate the reading, the m of "minimum" is written in lower case, while the M of "Maximum" is written in uppercase). Ask participants the following questions:

- According to their observations, is this mRT is the same for all plants, or does it vary depending on the forage species (e.g., herbaceous, shrubs, etc.);

- Did they observe that the mRT is constant, or that it varies depending on the season (e.g., growth in rainy season and dormancy during the dry season)?
- Do they know of other situations in which one uses a similar concept (e.g., cases of people convalescing after an illness in order to regain their strength and reserves, a bit like the plant in the sequence of images);
- Have participants observe that there is a relationship between the actual recovery time, the intensity of grazing, and the amount of time the plant needs to return to a condition in which it can be grazed again;
- When a plant is grazed excessively, does it take more time to recover than when it was grazed more lightly ? Why?

4. Determining the rainy season mRTs of species chosen

Return to the images of species that the community would like to promote, and that were posted on the pocket chart at the end of the preceding module. Have participants discuss for a few minutes and ask them to come to an agreement amongst themselves on the duration of this mRT (expressed as a number of days).

- For the first species selected, how many days must elapse *during the rainy season* between the time when it stops being grazed and the time when it has completely recovered?
- Next, ask the "village secretary" to record (in the local language) the number of days needed for this recovery next to the image of the first plant.
- Ask the same question in turn for each of the other selected species, and note the duration of the mRTs next to the corresponding illustrations.
- Even during the rainy season, when vegetation grows more quickly than during the rest of the year, the plant needs time to compensate for the losses due to grazing and to regain their initial size. During the rainy season, the mRT is a few weeks (20 to 30 days being the commonly advanced figures).

5. Determining the dry season mRTs of species chosen

Ask participants if the Minimum resting time (mRT) is the same during the dry season as during the rainy season. (Answer: Obviously, it is much longer, since plants grow more slowly during the dry season than during the rainy season.)

Allow the participants to agree on the *dry season* mRT for each species chosen, and record these mRTs on the table of folders, as was done under Step 4 above.

Unlike annuals, of course, only perennial plants have a dry season mRT. Since growth is much slower than during the rest of the year, it can be as much as three to four months, depending on the case.

6. Conclusions / lessons to be learned :

Help the participants to learn the lessons of this exercise by asking them a few questions, such as:

- What does this figure (i.e., the mRT) represent? (Answer: The minimum number of days that must be provided to a plant between the moment it is protected from grazing, and the return of grazing animals;
- How might one explain the mRT to herders who have not attended this training session?
- What would they say to herders who had not attended this outreach session in order to persuade them of the ***importance*** of this idea?
- Are people in the habit of taking the mRT of various fodder plants into account when bringing animals to graze on them ?
- What is the risk to vegetation when one fails to observe the mRT of species to be promoted by staying too long in the same part of the grazing area ?
- How can one respect the mRTs of several species that one wants to promote, when these mRTs are different? (Answer: In order to ensure the recovery of ***all*** the plants in question, grazing of vegetation may only resume once the period corresponding to ***longest mRT*** has elapsed.)

7. Transition to the "Maximum grazing time" module

If participants have no further questions or comments, introduce the next training session by explaining that the second “brick” in the principles of management is now in place. The participants are now able to monitor the minimum resting times (mRT) of forage plants that they want to promote. Now show participants the icon representing the mRT and place it alongside those that have already been studied.

Announce that the next session will deal with a similar concept just as important as the resting time for plants: i.e., the Maximum grazing time (MGT).

MODULE # 26:

MANAGEMENT PRINCIPLES

MAXIMUM GRAZING TIME

PEDAGOGIC ANALYSIS

Desired situation

- The herding community plans the utilization of its grazing lands.
- It implements this plan on the basis of its observations of changes in vegetation over time.

Current situation

- Herders do not take their observations of the condition of vegetation into account in managing their herds and grazing lands.
- They make decisions about herd movements based on the quantity of pasturage remaining on the grazing land, and not on the basis of the plants' requirements.

Disparity between current and desired situation

- Herders do not know how to determine the Maximum grazing time (MGT) of the forage plants that they want to resuscitate.
- In any case, their individual utilization strategies make it impossible for them to adhere to this MGT.

Objectives of the module

By the end of the training session, the target group shall be able to determine the MGT of the plants that it would like to resuscitate, for the growing season as well as for the period of dormancy.

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. The target group in any case should include representatives of at least the following:

- the pastoral management committee
- auxiliary herdsmen
- shepherds or cattle drivers

The "secretary" of the session and a participant pose in front of indications of the dry-season and rainy-season mRT and MGT for two plants that they have sketched themselves. (34/07)

Exercise utilized by the module :

Semi-structured exercise based on a sequence of 10 illustrations.

Graphic supports: :

Folder # 26

Approximate duration of the module :

1 hour

IMPLEMENTATION

1. Introduction :

Establish the connection between the preceding session and the MGT concept by asking participants to summarize the main idea of the mRT

concept. Emphasize in the ensuing discussion that it is not only the ***recovery, or resting*** time that is important in promoting forage plants, but also their ***utilization, or grazing*** time.

This discussion shall be based on the illustrated sequence of 10 images used for the preceding "***minimum resting time***" module (# 25). For this module, participants must understand that the duration of utilization, or grazing, is represented in the sequence by images in which the cow is present: The first image is supposed to represent the time when the cow begins to graze on the plant, and the second image is supposed to show the time when the cow leaves this grazing area and begins to let the plant recover.

As in the preceding module, make sure that participants do not limit themselves to observations of what happens to the aerial portion of the plants, and that they understand the essential role played by the roots in the process.

Next, discuss the impact of the animals' behavior on the plants:

- From the time when an animal begins to graze on a plant, how much time passes before the plant begins to grow again?
- Is this time the same for every forage species (e.g., herbaceous, shrubs, etc.)?
- Is it the same in every season (e.g., during the rainy season, dry season, etc.)? (Answer: Obviously not, since vegetal growth is slower during the dry season than during the rainy season).
- Do all plants grow at the same speed? What is the implication of this speed for the Maximum grazing time?

2. Determining the rainy-season MGT of selected plants

Return to the images of the plants that the community has chosen to promote, and that are displayed on the table of folders. Have participants discuss for a few minutes, and then ask, for example, the following questions:

- How many days may elapse, ***during the rainy season***, between the time when the first selected plant begins to be grazed and the time when it begins to grow back?
- Once the participants have conferred with each other and agreed upon a figure (i.e., a number of days), ask the "secretary" to write this figure (in "Arabic" numerals) next to the image of the corresponding plant on the pocket chart;
- Ask the same question for each of the previously selected plants in turn, and record the group's response next to the image of the corresponding plant.

- During the rainy season, the plant of course tends to resume its growth very soon after having been grazed; herders will usually indicate MGTs ranging from 3 to 5 days.

3. Determining the dry-season MGT of selected species

Continue the procedure followed for the mRT module (# 25) above, asking participants the following questions:

- Is the MGT, i.e., the number of days that elapse between the time a plant starts to be grazed and the time when it begins to grow back, the same in the dry season as in the rainy season?
- Allow participants to discuss and determine this number of days during the *dry season* for each of the desired species, as was done in the second step of this module.
- As is the case with the mRT, the MGT figure increases considerably during the dry season, during which the vegetative process slows greatly. Values ranging from 8 to 10 days will be suggested by herders for most plants.

At this point, helped by the outreach team's resource management specialist, you may introduce the idea of the growth of perennial plants during the dry season. It may prove difficult to make this distinction in severely degraded Sahelian regions where herders scarcely have any more opportunity to observe perennial species apart from the arboreal stratum.

- Is there any plant growth during the dry season?
- If they do indeed note that during this season, annual species have totally ceased to grow (either because they have disappeared or because they are completely desiccated), do they know of any plants which, like trees and shrubs, continue to develop during the dry season ? (Answer: perennials)
- Why are these species of interest in comparison to annuals?

4. ***Utilization of the exercise***:

Get participants to work out the MGT concept for themselves by asking the following questions:

- When animals have a chance to graze a plant continuously -- first the plant itself and then the young shoots that are trying to develop (and which are the most appetizing) -- what effect does this have on the plant? (Answer: Its reserves are exhausted, it can no longer develop, cannot regain its initial size and will gradually disappear).
- What does the number of days that they have just estimated actually mean? What happens to the plant during this period? (Answer: It is

regenerating its aerial foliage using energy from its roots, and then re-stocks carbohydrates synthesized from chlorophyll, and from which it reconstitutes its root reserves);

- Is there a relationship between the intensity of grazing and the Maximum Utilization Time? What is it?

5. Conclusion: lessons to be learned from the exercise:

We saw, in the preceding session, that there are different mRTs for each plant.

- What does the figure that we are now discussing (i.e., the MGT) represents?
- How would they explain the MGT to a herder who has not attended this outreach session?
- What would they say to the herders who were absent to convince them of the *importance* of this notion ?
- Do they usually take the MGT of the plants on their grazing lands into account when their livestock is grazing?
- What risk is involved if one does not respect the Maximum grazing time (MGT) of species that one would like to see develop, and if one keeps livestock too long in the same place?
- What must one do to respect the MGT of several species to be promoted, when they are different from each other? (Answer: Limit the duration of grazing to the number of days corresponding to the species with the *shortest MGT*).

6. Transition to the following Module

If the participants have no further questions or comments, introduce the next session by explaining that they have just put in place the third “brick” of the management’s principles. They are now familiar with the Maximum grazing time of the species they want to promote. Now display the icon representing the « MGT » and place it alongside those that have already been studied. Announce that the next module will deal with the risk involved in ignoring the concepts of mRT and MGT, and which consist in overgrazing.

NOTE TO THE FACILITATOR

- The outreach team’s resource management specialist will need to make sure that participants have understood the connection between MGT, mRT and grazing intensity. The longer the MGT, the more severely defoliated the plant becomes, and the greater the plant’s need for a longer mRT.

MODULE # 27:

MANAGEMENT PRINCIPLES

OVERGRAZING

PEDAGOGIC ANALYSIS

Desired situation

The herding community manages its pastures, taking into account the fact that degradation due to overgrazing proceeds on a plant-by-plant basis.

Current situation

- Herders perceive the deterioration of their pastures due to overgrazing as if it affected the vegetation as a whole, and not just one plant at a time;
- Herders imagine that overgrazing is due to an excessive number of animals, and fail to realize that overgrazing can result from the continuous presence of only one animal.

Disparity between current and desired situation

Lack of understanding of the overgrazing process, due to the herders' inability to see the functional link between their field-level observations and the idea they have of the process of pasture degradation.

Objectives of the module

By the end of the training session, herders will be able to explain the process of overgrazing. This explanation will take into account the respect of the *minimum resting time* on the one hand and, on the other, the respect of the *Maximum grazing time* and, finally, the process by which animals select species that herders would like to rehabilitate.

LOGISTICs

Target group :

The choice of the target group is left up to the community and the outreach team. It should include representatives of at least the following:

- the pastoral management committee
- auxiliary herdsmen
- shepherds or cattle drivers

Participants from the village of Kiézé (Chad) are invited to choose a sweet from among those offered, in order to illustrate the mechanism of overgrazing. *(34/08)*

Exercise utilized by the module :

The “candy game”
The “open-ended” story of the village of Oukaltine;

Graphic supports: :

Posters of the village of Ndourndour (Folder # 7)

Approximate duration of the module :

1 hour

<u>IMPLEMENTATION</u>

1. Introduction : Candy game

Place on the mat, in a dish or calabash, some candies or other treat that the participants enjoy to varying degrees (e.g., peanuts, dates, chili peppers). Be sure that there is a choice among at least three types of candy or treats, with at least three pieces of each, and that there is a clear hierarchy of preference on the part of the participants.
Invite the participants, in turn, to choose and take a candy or treat, according to their preference.

Once most of the pieces have been picked up by the participants, stop the game and ask participants to describe what they observed.

- Did all flavors of candy or types of treats disappear equally fast?
- Which candies or treats disappeared first? Why?
- Do animals display food preferences, as humans do?
- Announce that they will now hear a story.

2. The story of the village of Oukaltine

Before starting to tell the story of this village, place on the flip-chart or on the mat, the two posters of the village of Ndourndour from the "*Landscape goal*" module (# 7): one with an image of luxuriant vegetation (before its deterioration) and the other showing a degraded environment (due to overgrazing). Then tell the story as expressively as possible.

Oukaltine was once a green village in the midst of the forest. This forest was very dense, with very tall trees, bushes and plants of various kinds species and in very great numbers. There were also so many wild animals that the population could get all the meat it needed by hunting.

The community was good at using its village lands: its livestock was in good condition and produced enough milk and meat. This situation lasted until about forty years ago, when the young people began to migrate towards the city, the herders' organization began to fall apart, and there was less control over land management. For example, livestock was allowed to wander without supervision. Animals remained close to the village and its well and essentially grazed the same spots constantly.

Without any controls, the animals had plenty of time to choose the fodder plants they liked best. Of course, they began to seek out the most appetizing ones. After some time of grazing, these plants tried to regenerate by producing very tender shoots that were even more delicious than the older part of the plant, and to which the animals gravitated as soon as they emerged. Indeed, each time a plant is grazed, it tries to regenerate after a few days, but if the livestock is still there waiting for the most tender shoots, the plant ends up exhausting its reserves and disappears completely.

Once the most appetizing plant is gone, the animals are forced to settle for something a little less appetizing, just as we humans settle for bread when there is no more cake and we are still hungry. The same thing happened here: since the animals concentrated on this second type of plant, it suffered the same fate as the first, and ended up disappearing also.

Thus, one by one, the most appetizing species of plants disappeared, thus enabling the least appetizing plants to colonize the grazing area, until the only things left on the grazing land were absolutely unpalatable plants that neither cattle nor wild animals

would touch. The herd got thinner and thinner and the wild game began to disappear, too. Monkey that had previously come up to huts to steal maize became scarce, and nobody remembered having seen any gazelles, which had been abundant in the forest in the old days, according to the village elders.

Since there was now nothing left to feed the livestock, the herders had to migrate to other regions in search of pasturage, thus erasing the name of Oukaltine from the map.

3. Utilization and lessons to be learned from the story :

Once you have finished telling the story, ask participants if they have any questions in need of clarification. If they don't, have them contemplate what happened in the village of Oukaltine:

- Does this story remind them of anything that they might have had a chance to observe around your own village ?
- Does this story seem made-up to them, or do they think it's a true story?
- If one does in fact put animals on grazing land, what plant do they start to graze on? Why?
- Why do animals return constantly to the same grazing spot?
- In their view, is overgrazing the result of an excessive number of animals? Why or why not?
- What very practical lessons can one derive from this story, regarding the deeper causes of overgrazing and the degradation of pasture lands?
- In their own tradition, is there a proverb that might illustrate the important ideas contained in this story?

4. Demonstration on the flip-chart

Once feedback has been obtained on the story of the village of Oukaltine, you place a large sheet of blank paper on the flipchart and, felt-tip markers in hand, go back over the story of Oukaltine emphasizing what happened at the level of the plants. (Be careful not to go into *too much* detail.)

The demonstration consists of drawing a large circle representing the perimeter of the grazing land, with small tufts of vegetation of different colors inside the circle. Then you explain what happens first with the most appetizing plant (e.g., the green one), then to the one that is a little less appetizing (e.g., the blue one), finally leaving only the one that the animals will not touch at all (e.g., the red one.)

5. Utilization of the demonstration

Once the flipchart demonstration is over, make the following points:

- The number of animals is not the issue: when this number decreases, as it does at the end of the story, the environment is no better off.
- The issue is the fact that the plants are grazed selectively, one after the other;
- Insist also on the fact that the most tender parts of the plant (i.e., the new shoots) are most eagerly sought out by the animals, which are less interested in older vegetation that could tolerate grazing;
- Overgrazing occurs on a plant-by-plant basis over time; given enough time, a single animal left continuously in a large pasture can cause overgrazing;
- Finally, do the participants think that the villagers of Oukaltine respect the mRTs and MGTs in managing their grazing lands? Why?

6.Transition to the next module: "Division into paddocks"

If the participants have no further questions or comments, introduce the next session by explaining that they have just put in place the fourth "brick" of the principles of management. Display the icon representing "*Overgrazing*" and add it to the others.

Announce that, in the next session, they shall study how to use the two ideas of mRT and MGT to manage grazing lands, avoid overgrazing and promote forage plants that have been selected for development.

MODULE # 28:

MANAGEMENT PRINCIPLES

mRT, MGT AND DIVISION INTO PADDOCKS

PEDAGOGIC ANALYSIS

Desired situation:

For a community to be able to manage its resources adequately:

- its pasturage must be organized into paddocks in such a way as to allow periods of grazing by animal and plant resting to occur in succession;
- There must be a consensus, among community members, on the delimitation of these paddocks, and there must be an obligation to have animals graze in accordance with a grazing management plan.

Current situation

In reality, however, the situation is the following:

- The reigning principle is that of “every man for himself”: livestock wanders and moves about at the herders’ individual initiatives;
- The vegetation’s need for recovery time is not respected, and pasturage thus deteriorates.

Disparity between current and desired situation

- Undifferentiated perception of grazing lands that make time management impossible;
- The organization of the herding community stands in the way of consultation prior to the introduction of a collective disciplines aimed at rational utilization (planned introduction of animals onto paddocks and planned herd movements).

Objectives of the module

At the end of the session, the participants shall be able to:

- determine the number of paddocks on their grazing lands on the basis of the mRTs and MGTs of the forage plants that they want to promote;

- ♦ show how a more intricate time management involves a greater number of paddocks.

A participant experiments with the arrangement of "pie slices' in order to determine the minimum number of paddocks required. (35/06)

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. It must, however, include representatives of at least the following:

- the pastoral management committee
- auxiliary herdsmen
- shepherds or cattle drivers

Exercises utilized by the module :

Inter-active presentation using flip-chart or other tool ;
Practical exercises dealing with real-life cases.

Graphic supports: :

Folder # 28, limited to the specific icon

Approximate duration of the module :

1 hour

IMPLEMENTATION

1. ***Introduction and linkage with the "overgrazing" module* (# 27)**

- Acknowledge to participants that the four preceding modules (i.e., the "bricks") constituting the '*management's principles*" instructional unit might seem a bit theoretical. Reassure them that they are now going to understand how the ideas they have worked out, i.e., the mRT and MGT in particular, can be directly applied to the planning of resource use so that they can improve their environment.
- Then suggest to one or two participants that they briefly summarize what they recall about these modules in connection with recovery, or resting time, grazing time and overgrazing.
- Next, ask the group if any participants have a idea of how one might go about dealing with overgrazing. In particular, if resting and grazing times are so important, how might one figure out a way to adhere to them?
- Some participants may already be familiar with some sort of rotational grazing and may suggest that the solution lies in the subdivision of pasture lands into smaller paddocks. If this is the case, the group will have not trouble transitioning to this module.
- In any case, take care not to allow brainstorming to go too far, and not to replicate the brainstorming that took place in module # 24. The point here is simply to introduce a new idea.

2. Presentation of the idea of division into paddocks

✓ *Absence of subdivision*

On the flipchart (or, if none is available, in the sand) draw a circle representing the grazing lands belonging to the participants' community. Assuming that the village's herd is on this pasture land, can they think of a way to apply the resting and grazing times to the vegetation there? The answer is, of course, no: the livestock is constantly in the same place and is free to return at any time to the same plant.

✓ *Subdivision of grazing land into two parts*

Next, draw a second circle, dividing it this time into two halves. Assuming that the village's herd can be concentrated onto one of the two halves of the pasture, have conditions been created that would make it possible to manage resting and grazing times? Indeed, participants may note that, if the herd is on one part of the grazing area, where the vegetation is being used, the vegetation on the other half is not being grazed and therefore has a chance to regenerate. The problem is that the MGT is in this case the same as the mRT. We know, however that the MGT is always shorter than the mRT, and that this solution is still not satisfactory.

✓ *Subdivision of grazing land into four parts*

Next draw a third circle, dividing it into four quarters. Assuming that the animals are kept in each of the quarters in turn, it is obvious that conditions are being created to ensure that the plants have an MGT three times shorter than the mRT, since the animals will occupy the three other subdivisions of

the grazing land before returning to the same plant. We are getting closer to a solution.

- ✓ *Subdivision of the pasture into eight parts*

  This time, do not explain anything to the participants: simply ask each one to draw two additional lines to subdivide the grazing area into eight parts, and ask what the advantage is of this subdivision into even smaller parts. In this case, the maximum grazing time becomes seven times shorter than the recovery time, since the animals visit seven other subdivisions before they can return to the same part of the pasture. Ask participants to explain the advantage of dividing the grazing area into even more (and even smaller) parcels.

- ✓ *Utilization of the exercise*

  Let participants reflect for a few moments on these images (on the ground or on the flip-chart), since this idea of subdividing grazing land is probably new to them.

  - ♦ Tell them that each of the grazing subdivisions that will make it possible to manage resting and grazing times shall henceforth be referred to as a "*paddocks*";
  - ♦ Since resting and grazing times are managed by manipulating the number of paddocks, the idea now is to decide on a number of paddocks based on the MGT and mRT of the plants one wants to encourage.

3. Concrete examples of division into paddocks

Then, you draw a circle on the flip-chart and proposes, as an example, a MGT of 5 days.

- ♦ Draw a small paddock within this circle and write the MGT figure (e.g., 5 days) in it. This is the maximum amount of time that livestock may be allowed to stay in this paddocks. Affix the image of a herd to this paddock.
- ♦ We now need to calculate the number of paddocks on the basis of the mRT (e.g., 50 days.). This is the minimum amount of time that must elapse before the animals may return to the same paddock.
- ♦ You therefore depart from this parcel, taking the animals (move the image). But it is not possible to remain for 50 days on a single large parcel. So, what can one do? (Divide it again.) Into how many paddocks?
- ♦ Instead of choosing a figure at random and then having to calculate and re-calculate, divide the mRT (50 days) by the MGT (5 days), thus obtaining 10 paddocks in addition to the one that the herd is on, for a total of 11 paddocks. This figure represents the minimum number of paddocks needed to allow plants to recover and avoid overgrazing.
- ♦ Return to the circle. Add 10 paddocks to the paddock already drawn, to complete the diagram. Follow the herd's movements (with the image) from one paddock to another, until the herd returns to the first paddock,

and note that the mRT of 50 days is possible with a stay of only 5 days in each paddock.

Conclude this stage of the module by doing the following :

- Invite participants to ask questions and make comments ;
- Encourage them, to the extent possible, to respond to other attendees' questions;
- Identify those participants who are most at ease with numbers and use those individuals in the following exercises;
- Finally, explain that the formula that we have tested can now be applied to any mRTs or MGTs: for example, those of plants chosen during the module on "*plants to be promoted*" (# 24).

4. Application to plants that one wants to encourage

You must once again use the flip-chart, since numbers are going to be involved. You should explain to the participants that they are now going to figure out the number of paddocks corresponding to different mRTs and MGTs (modules # 25 and # 26).

- Have the participants designate someone to make the drawings, and have this person start by drawing a circle with a paddock in it.
- Then, invite participants to say which plant they want to use as an example, stating its MGT and mRT;
- What number should go into the parcel already drawn? (Answer: the MGT). Affix the image of the herd there, and remind participants what MGT means.
- What number is left? (Answer: the mRT)
- What should one do with this number to figure out the number of additional paddocks? Let participants do the calculations, helping them only if they are really stymied;
- Have the "secretary" add the number of paddocks that the group has calculated;
- Finally, move the image of the herd successively into the different paddocks thus created, explaining the meaning of the mRT and how the movement of livestock makes it possible to observe the resting period.

5. Utilization of the exercise

- Is it necessary to limit paddocks to this minimum number?
- What is the advantage of having a larger number of paddocks than the minimum?
- What should one do if one wants to promote more than one plant in a grazing area?
- How should this be done during the dry season, in general?

- Taking the idea of “time” into consideration, is the size of the paddock also important?
- If the minimum recovery or resting time is relatively short, do we need to increase or decrease the number of paddocks?
- The resource management specialist can explain how a large number of paddocks allows the herd to find “fresh” forage more often and thus to be better nourished.

6. Transition

Take out the icon for this module and place it next to the others. Return to the icon for the instructional unit, and note that the participants now have the principles needed to plan grazing, which is the next instructional unit in the training program. Congratulate the participants and thank them again for the work they have done.

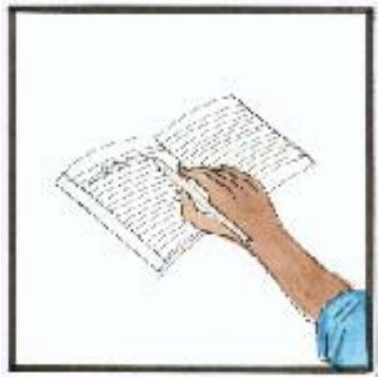
NOTE TO THE FACILITATOR

- If the group of participants is particularly advanced and wants to perfect its skill in calculating the number of paddocks required for various mRTs and MGTs, you can organize a mini-competition that would be conducted as follows: Ask the participants to divide themselves into two teams, each one doing the calculations for plants with different mRTs and MGTs. The task consists of determining the number of paddocks appropriate for each of these plants during the rainy and dry seasons. Equipped with sheets of paper and a felt-tip marker, the group that is first to supply the right answers is the winner.

- If, on the other hand, the participants seem to be having trouble following steps, 2, 3 and 4, one can detail the process by adding one parcel at a time.

INSTRUCTIONAL UNIT SEVEN

PLANNING OF GRAZING



Introduction of the "planning of grazing" instructional unit: (5 minutes)

Introduce this unit with a certain amount of humor, even though the subject is very serious. Indeed, the four modules of the instructional unit on planning represent the culmination of the participants' efforts during the entire outreach cycle. By the end of this instructional unit, the community's grazing management plan will be drawn up, and this is, after all, the ultimate goal of this outreach effort.
Ask participants what particular things they have noticed technicians and civil servants are doing when they visit their village before making an important decision?

- How do these visitors look? What do they always have in their hands (Answer: notebooks and ballpoint pens.)
- Why ? Is there a logical reason for walking around a village with these things in one's hands ?

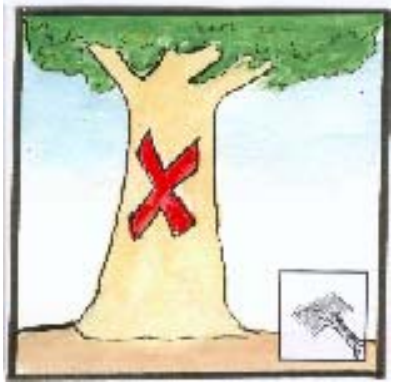
Pursue this exchange, observing that collecting a lot of information in order to make an important decision means asking a great many questions that elicit a great many answers. For the exercise to be productive, one must either have a good memory, or else carry a notebook and a pen. This is why technicians and civil servants are not the only ones who use notebooks and pens in daily life.

Next, explain to participants that this image of a notebook and ballpoint pen in a hand will be the "icon" for the four following modules, since in these modules they are going to identify the events and make the calculations needed to develop a grazing management plan. Then display the "*Planning of grazing*" icon.

MODULE # 29

PLANNING OF GRAZING

RANGE-LAND MAPPING



PEDAGOGIC ANALYSIS

Desired situation

- The number of paddocks to be established in the herding community's grazing area is determined on the basis of the mRTs and MGTs of forage plants that it wants to promote.
- The delimitation of these paddocks is established by taking advantage of the existing topography, vegetation, infrastructures and boundaries (whether natural or artificial).

Current situation

- Grazing areas are not divided into paddocks.
- In any case, the lack of organization on the part of users would make such a parcellary arrangement impossible and/or pointless.

Disparity between current and desired situation

There is a gulf separating anarchic and destructive use of grazing resources from rational utilization that could allow those resources to be rehabilitated.

Objectives of the module

By the end of the training session, the participants shall be able to divide their grazing lands into paddocks, define the boundaries of these paddocks, and identify them by name.

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. In any case, the target group must include representatives of at least the following:

- the pastoral management committee
- auxiliary herdsmen
- shepherds or cattle drivers

Participants sketch out the map of their village lands on the ground. Details are indicated with twigs and labels provided by the facilitator. (37/09)

Exercise utilized by the module :

Mapping building (Srinavasan, p. 99)
Walk-through transects

Graphic supports: :

Folder # 29

Approximate duration of the module :

2 to 2 1/2 hours

IMPLEMENTATION

1. Introduction of the module

Introduce this module by pointing out the connection to the preceding module, which showed that parceling (i.e., the subdivision of the grazing area into a variable number of smaller paddocks) was the only way to get the herd to adhere to the recovery or resting (mRT) and grazing (MGT) times of the plants that the community wants to promote. This is why the participants calculated the minimum number of paddocks needed. But how should the grazing area be divided into paddocks? To do that, one must draw a map of the grazing area.

2.Production of the site map

Ask participants to recall the village map that they drew at the beginning of the outreach cycle. The same map cannot be re-used, since it covered only the village and its immediate environs. It will now be necessary to cover the entire space utilized by the livestock. Since they already acquired some practice drawing the village map, participants will have no trouble drawing a map of their grazing area now.

- ✓ *Mini brainstorming session on identification of landmarks*

Before starting to draw, have a mini brainstorming session to allow participants to identify things that might serve as landmarks for their map. Have them name, for example, encampments, natural borders, paths, wells, water points, rivers, ponds, dunes, firebreaks, windbreaks, fields, cliffs, forests, etc. , indicating where they are in the vicinity.

- ✓ *Production of the map*

Suggest that participants do a rough draft on the ground, which is easier to correct than paper, and then propose that they discuss and modify this first iteration before transcribing it to the flip-chart.

Show landmarks identified in the brainstorming by using twigs, pebbles, and any small discarded objects lying around, as well as the small village infrastructure labels contained in the folder for the module. Ask questions in order to elicit information: about places, the people that occupy them, the facilities that exist and conflicts that could possibly occur in connection with their utilization. If necessary, adjust the initial schema. When the participants are satisfied with their work, ask them to transfer this map to the paper on the flip-chart.

- ✓ *Initial attempt to establish the scale of the map*

This step is crucial. If (as usually happens) no reference map is available, a very approximate estimate will have to suffice. For example, if the community is unfamiliar with the metric system, the participants may indicate how much time it takes to walk from the village to one of the places on their grazing area. One might also estimate these distances using the odometer of a vehicle driven by someone accompanied by a member of the community.

3. Parceling out the site

The parceling out of the site can now proceed. If the initial map is still on the ground, the exercise can continue on the ground, since there will be many

hesitations and corrections. The sketch on the ground will be transferred to the flip-chart once the participants are satisfied with their work.
Ask them first what information they need in order to draw the paddocks. (Answer: they need to know the number of paddocks that was calculated during the previous module on the basis of the MGT and mRT.)

✓ *Identification of constraints*

Before they try to envisage the borders of the paddocks, ask participants to keep in mind at all times the constraints to be considered – drinking, crop protection, animals' propensity to cluster around dwellings, etc. -- in connection with the daily internal circulation of livestock between the paddocks.

✓ *Demarcation*

Ask participants to study their map carefully, keeping all these important factors in mind, and to draw the borders of the paddocks based on the previously identified constraints.
In addition, emphasize that, whenever possible, it will be advantageous to have the borders of parcels coincide with existing borders: e.g., ravines, dunes, cultivated fields, changes in vegetation, roads, paths, villages, firebreaks, etc.

- ♦ When they are on the verge of completing the demarcation of their paddocks, ask participants if they are satisfied with the *size* and *shape* of the paddocks they have designed;
- ♦ When the participants are satisfied, transfer the sketch from the ground to the existing map on the flip-chart.

✓ *Naming of paddocks*

At this point, the issue of naming the paddocks should be raised, so that, if they are very numerous, each one can be specifically referred to. Herders generally identify the various parts of their grazing area by commonly used names that they will transfer naturally to paddocks.
After conferring briefly, participants will come up with names that will be immediately written, in the language and script of the community by the "secretary", onto the map on the flip-chart .
In order to facilitate the later steps, each name shall be preceded by a number (e.g., 1, 2, 3, etc.) so that people who neither speak nor read the local language can interpret the management map that will be developed subsequently. In any case, the villagers have watches and thus can read these number. They won't use these numbers, anyway, since they will be identifying parcels by name.

- ✓ *Area*

Finally, one should endeavor to estimate, with participants, the approximate surface area of each paddock. This should be done based on the map and using its approximate scale. Note that more precise estimates can be made later, but at this stage, it is useful to have at least a preliminary idea of the dimensions of these paddocks.

4.Walk-through transect of paddocks

It is essential to conduct a walk-through, during which the participants, armed with the rough map that they have temporarily detached from the flip -chart, accompany the outreach team to the paddocks located close to the training site. You will guide the participants' reflections, acting as a resource person in the least directive way possible.

- ♦ Are participants sure that they have correctly rendered the shape and size of the paddocks?
- ♦ Ask participants to check themselves the accuracy of the landmarks they have shown (structures, wells, ponds, cultivated fields, etc.)
- ♦ Ask participants also to imagine the various routes that the livestock would need to take every day to reach this paddock and to indicate if they will have to vary with the seasons.
- ♦ Introduce the notion of "relative value" among the paddocks, by asking participants to observe the richness of the vegetation and to indicate how it compares to the rest of the grazing area;
- ♦ Can the paddock be used in every season?

Of course, if the actual planning is taking place during the outreach session, , the walk-through will be conducted with the entire planning team (i.e., management committee, herders, auxiliary) *over all the paddocks* so as to confirm their exact boundaries, markings, relative value, etc.

5. ***Synthesis and adjustments to the map***

Back to the training site, have participants summarize the information they were able to glean from the walk-through, and study the map once more with these observations in mind. Have them make the needed adjustments, if any are needed.
Remind the participants that it is important to keep in mind the idea that a map of this type, like the grazing plan, can be modified at any time, and that they will indeed have a chance to do that before they finish the exercise.
Invite applause for a job well done.

6. ***Brainstorming : ways of marking boundaries***

Finally, now that they have shown the boundaries of paddocks on their map, ask participants ***how these boundaries should be marked*** on the grazing area itself, for the information of shepherds and visitors.
Insist on the fact that this boundary-marking is only indicative and must not prevent ***access to the grazing area*** to other users (as would be the case, for example, with barbed wire).
Emphasize that there are ***many ways*** to do this, depending on the region and the customs, and ask them to think of some. The following ideas may be put forth:

- Stakes
- Painted marks on trees
- Piles of rocks (cairns)
- Thorny hedges
- other.

With the participants, study the advantages (e.g., low cost, locally available materials, sturdiness, etc.) and disadvantages of the various solutions envisaged and agree on the one that appears best suited to their specific circumstances.

7. Transition to the next module

If the participants have no further questions or comments, introduce the next training session, which will deepen their knowledge of the paddocks that they have just created, so that they can exploit them more efficiently in the future.
Display the icon representing the «***range-land mapping***» and put it beneath the icon for the "***planning of grazing***" instructional unit.

NOTES TO THE TRAINER

- In preparing this training module, you will do a bit of research to see if is any cartographic document of any type exists that might cover the site of the community, and that could be made available to the community at the beginning of the exercise. The scale of such documents shouldn't be smaller than 1/100,000th, and might include:
  - ✓ Commercial road maps
  - ✓ Cadastral maps;
  - ✓ Aerial photos;
  - ✓ Satellite images
  - ✓ Sketches done for other projects and programs, etc.

- At this stage, as said before, the resource management specialist of the outreach team can indicate to the participants that the increased number of paddocks, aside from the fact that it allows for closer monitoring of mRTs and MGTs, allows livestock to move more frequently in the direction of “fresh” ungrazed grass and, therefore, to be better nourished.

- Caution! The fact that they used the circle in the “*parceling of the grazing area”* module does not mean that participants can be imprecise in representing their own grazing area.

MODULE # 30

PLANNING OF GRAZING

RELATIVE VALUE OF PADDOCKS

PEDAGOGIC ANALYSIS

Desired situation

Livestock moves about within the grazing area from one paddock to another in accordance with the grazing plan established on the basis of the relative value of each paddock.

Current situation

Livestock moves about in an unplanned fashion, under the pressure of external events (e.g., rainfall, competition from other users, parasitic diseases, etc.)

Disparity between current situation and desired situation

- The concept of the relative value of paddocks cannot be grasped since paddocks do not exist;
- Herders' strategies consist in providing their animals with the best vegetation rather than in managing grazing resources.

Objectives of the module

By the end of the training session, participants shall be able to gauge the relative value of each paddock and to plan the movements of livestock between them, taking into account the mRTs and MGTs of desired plants

LOGISTICAL ASPECTS

Target group :

The choice of the target group is left up to the community and the outreach team. It should in any case include representatives of at least the following:

- the pastoral management committee

- auxiliary herdsmen
- shepherds or cattle drivers

All practitioners of "rapid rural appraisal" are familiar with the technique of using small pebbles to show the relative value of parcels (38/14)

Exercise utilized by the module :

Matrix ranking and scoring

Graphic supports:

Folder # 30, limited to the "*relative value*" icon

Approximate duration of the module

90 minutes

IMPLEMENTATION

1. Introduction

Establish the connection between the preceding module and this one by asking participants to study carefully the map they have made, and to imagine the various paddocks in all their diversity. Do they perceive significant differences between paddocks? Why is it important to take these possible differences into account?

Follow up on this introduction by indicating that in this module, they will expand on the idea of taking the quality of the various paddocks into consideration in planning the utilization of the grazing area, and of adhering to the resting and grazing times of the plants discussed in the previous modules.

2. Preliminary observations

- During the actual planning of the grazing area, the procedure described below must be applied in turn to the *rainy season* and the *dry season*. In order to avoid unnecessary repetition, the procedure will be described only once in this module.
- For this module, the facilitator must gather about a hundred small pebbles. (These are not provided in the module's graphic support folder.)
- The map of the grazing area attached to the flip-chart is placed flat on the mat, and participants gather around it in such a way as to allow them to estimate the relative values of the different paddocks (See illustration above). To indicate this, participants will place small pebbles on each paddock represented on the map.

3. Relative value of each paddock

The point of the exercise is to recognize that all parts of the same grazing area do not have the same vegetation, and thus do not have the same nutritive value for livestock, and that this must be considered in establishing the grazing management plan.

✓ *Mini brainstorming session on factors determining relative value*

Once they have made the above observation, ask participants to identify quickly the factors that determine fodder quality or the relative value of each paddock. Why do they assert that one paddock is "richer" or "poorer" than another? According to what criteria?

- Mix of different species
- Density of the vegetation
- Vegetative phase of the plants, etc.

When the ideas seem to have been exhausted, ask one participant to summarize the criteria that have just been identified, and that will be used in estimating the relative value of the paddock.

✓ *"Tagging" the parcel with the highest value*

Next, have participants identify the "richest" paddock, i.e., the one with the best quality vegetation according to the criteria they have just identified (the area of the paddock is not taken into account). The participants place six small pebbles on this paddock to represent the highest relative value. The other parcels can only receive an equal or smaller number of pebbles.

✓ *Evaluation of the poorest paddock*

The participants review the other paddocks one after another and identify those they feel have the poorest vegetation. They place a number of pebbles on this paddock in relation to the six that they placed on the richest paddock: e.g., 3 pebbles if it seems half as rich, 2 if it seems only a third as rich as the best paddock, etc.
Be careful: We are dealing here with the relative value *per unit of surface area*, e.g., per m2, and not with the total volume of fodder (taking surface area into account).

✓ *Evaluation of paddocks of intermediate value*

Since the relative values of these paddocks necessarily lie between those of the richest and poorest, the relative values of the intermediate paddocks are easily estimated by placing on them an intermediate number of pebbles.

✓ *Another "round"*

Before concluding the exercise, have participants go through the paddocks once again mentally to be sure that their relative value estimates are plausible and to correct them if necessary.

4. Duration of stay in each paddock

✓ *First "round" of estimates of duration of grazing*

Remind participants of the concept of the MGT. Have them establish the duration of stay in each paddock considering (apart from the maximum grazing time, MGT) the animals' nutritional needs, which will be met to a greater or lesser degree, for a given period of time, depending on the relative value of each paddock and on that paddock's size. Indeed, it is obvious that for a given MGT, animals must not stay as long in a small, poor paddock as they can in a larger paddock of greater relative value. Ask participants:

- How many days – at most -- can the livestock stay on each paddock? Could they stay for the entire duration of the MGT on paddocks that have the lowest relative value?
- If that is the case, can the animals' duration of stay on such a paddock be shorter than the MGT?
- As an example, if the herd can remain on the parcel with the highest relative value (represented by 6 pebbles) over an MGT of 3 days, one can deduce that they should only stay a single day on a parcel having an equivalent surface area but a relative value only one third (2 pebbles) as high as that of the reference parcel ;

- Even though the determination of the number of days of stay is linked to relative value, there is no mathematical correlation between them.

Once the participants have agreed on a duration of stay on a paddock, they record this on the grazing map by marking the corresponding paddock with the appropriate number of small sticks.

✓ *Checking for adherence to the mRT*

Since the stay on each paddock is necessarily equal to or less than the MGT, which was in turn applied to the richest paddock, and since the initial number of paddocks was calculated very tightly, one can predict that, by adding up the actual duration of stay of all the paddocks, one will arrive at a recovery or resting time (mRT) shorter than that which had initially been deemed desirable.

✓ *Adjustment of the number of paddocks*

Once they notice this, participants often suggest to increase the duration of stay in the richest paddock beyond the MGT. It should then be pointed out that stretching the presence of animals beyond the MGT shouldn't be done and that they should imagine another solution.

- Should the livestock be fed with supplementary purchased fodder?
- Should they leave the site and go graze on the neighbors' land?
- Should they subdivide one or more paddocks?

This last is obviously the most practical solution, and participants will not take long to figure it out. Once they do, they should be asked the following question :

- Which paddocks lend themselves most easily to such a subdivision? (Answer: Those with the highest relative value? The largest ones?)

Indicate approval when participants decide to subdivide one or several paddocks until the calculation of the resting time between two successive stays is equal to, or greater than, the mRT. Repeat this same procedure with paddocks that have a lesser relative value, until everyone accepts the number of paddocks and the grazing duration in each one. Record the amended grazing duration using small sticks. Conclude the exercise by reminding participants that:

- in subdividing paddocks, one must always keep in mind the constraints (e.g., circulation of livestock) that were taken into account during the initial parceling of the grazing area;
- new paddocks need more names (and additional numbers).

8. Transition

If the participants have no further questions or comments, show the icon that represents "*relative value of paddocks*" and place it next to the other icons for the instructional unit on planning of grazing. Then, introduce the next module which deals with the identification of foreseeable "*events and constraints*".

NOTES TO THE FACILITATOR

It must be perfectly clear to participants that the demarcated paddocks have different relative values and varying sizes. Therefore, the period of utilization by livestock cannot be the same for all of them.

MODULE # 31

PLANNING OF GRAZING

EVENTS AND CONSTRAINTS

PEDAGOGIC ANALYSIS

Desired situation

Events and constraints that might come up during the resource management process are identified in advance as elements intrinsic to this management.

Current situation

Problems encountered are dealt with on a case-by-case basis, as they come up, and are managed in a crisis mode rather than in the context of an overall forecasting strategy.

Disparity between current and desired situation

- Herders are disorganized and act in an improvised fashion
- They are acted upon by events and constraints and react to them, instead of foreseeing and controlling them.

Objectives of the module

By the end of the training session, participants will be able to:

- identify, and situate in time, events and constraints that must be considered in developing a grazing management plan;
- define strategies that provide solutions in advance to these events and constraints.

LOGISTICS

Target group

The choice of the target group is left up to the community and the outreach team. It should in any case include representatives of at least the following:

- the pastoral management committee
- auxiliary herdsmen
- shepherds or cattle drivers

The session's "secretary" spreads out before him the monthly calendar of events, which are represented by drawings or small labels. (38/17)

Exercises used by the module :

Brainstorming
Development of a "calendar of events"

Graphic supports :

Folder # 31

Approximate duration of the module

1 hour

IMPLEMENTATION

1. Introduction / transition

Establish the connection with the preceding module by asking participants to summarize what they have accomplished thus far with the map of their grazing land.
Show them that, if they add some indications concerning foreseeable events and the grazing calendar (livestock movements) to the information already on their village map, it goes beyond being a map and becomes instead a management plan indicating « what to do, where and when ».

2. Brainstorming : foreseeable events and constraints

Ask participants to list events that they can predict and that they know have a direct and unavoidable impact on pastoral management. There is no point in noting unforeseeable events (e.g., serious epidemics) and those that have no direct bearing on the way grazing land is managed (e.g., livestock thefts). Participants will cite, for example :

- the beginning of the rainy season (e.g., date of the first rains)
- probable date of arrival of transhumant herders ;
- emergence of poisonous plants ;
- flooding in some parts of the grazing area ;
- birth/suckling of young ;
- drying up of ponds and wells ;
- crops ; cropping techniques, harvest ;
- periodic livestock vaccination ;
- emergence of flies, parasites ;
- predators
- particularly hot or cold seasons ;
- Others, etc.

Each time an idea is put forth, bring out the corresponding (5x5 cm) label and be sure that all participants understand it the same way. Announce that these labels will be used to develop a “calendar of events” during the next step. Ask participants to quickly draw new labels if events are identified for which there is no illustration.

3. *Situating events in time*

- In front of the participants, unfurl a long roll of flip-chart paper about 30 cm wide that has been reserved for this purpose (and which will be reffered to as the “*calendar of events*”, and ask them to mark on it the sequence of months over the course of an entire year ;
- Each month may be represented by about 30 cm of rolled-out paper, depending on the density of events that the participants want to record;
- The names (or numbers) of the months are written in by the village « secretary », starting with what they consider to be the « beginning » of their cropping year (which is usually the beginning of the rainy season).
- Be sure that everyone has a clear understanding of the meaning of the "calendar of events”.
- Since the important events and constraints have already been identified, it is now possible to affix the labels representing them to the corresponding places on the " calendar of events”;

- Have participants discuss each of these events and constraints, and estimate their frequency, severity and duration ;
- Emphasize the importance of events represented by the dates of entry and departure of their own animals from the grazing area, if they are transhumant, and of other users, if there are any.
- Have the village "secretary" record details deemed important for each of these events onto the “calendar of events” in the local language.

Once the participants feel that their “calendar of events” is complete, one can envisage transferring its contents onto the map of the grazing area. However, since the map is at this stage already covered with quite a bit of information, it may be preferable to keep the “calendar of events” separate and to refer to the two documents side by side.

4. Analysis of paddocks and preparation of strategies

Congratulate participants on a job well done and invite them to pay close attention to their map and to the information it contains. Indicate that, before going on to the last planning step, they need to do one last thing:

- Among the events and constraints that have just been recorded on the “calendar of events”, they need to identify those that would have a direct impact on the accessibility or availability of one or more paddocks over a given period ;
- For events that would not have any impact on the accessibility of the paddocks, participants should be asked to imagine strategies for either avoiding or minimizing their negative consequences, or for taking advantage of them. Focus on each event in turn, and ask the community’s « secretary » to record the suggestions accepted on the “calendar of events”. At the end of the exercise, the « secretary » re-reads the group’s suggestions that have been entered into the “calendar of events” and makes changes to them if the participants wish.

5. Lessons to be learned / transition

- Finally, have participants reflect on the activity they have just completed. What are the most importance lessons they have derived from it ?
- Point out that the map is still not finished. What is still missing ? (Answer: The circuit of the livestock within the paddocks). This will be the subject of the next module.
- If the participants have no further questions or comments, display the icon representing « *events and constraints* » and place it next to the other icons. Then introduce the next session, which will consist of completing the grazing management plan

MODULE # 32

PLANNING OF GRAZING

FINALIZATION OF THE GRAZING PLAN

PEDAGOGIC ANALYSIS

Desired situation

Rational resource management is based on upon the overall/holistic planning of resource use, established in a collaborative fashion by all users.

Current situation

- Absence of planning of grazing;
- Individual, improvised and anarchic grazing scenarios

Disparity between current and desired situation

- Herders feel that they can no longer control the utilization of their resources;
- Traditional resource utilization systems have become disorganized and can no longer respond to the considerable constraints weighing on these production systems.

Objectives of the module

By the end of the training session, participants will be able to finalize a grazing management plan that can be accepted and applied by all users.

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. In any case, it must include representatives of at least the following:

- the pastoral management committee
- auxiliary herdsmen

- shepherds or cattle drivers

Participants are always very pleased with themselves once they have completed the calendar of events and the "snake calendar" of the grazing management plan (39/04)

Exercises utilized by the module:

Cartography (circuits of livestock movements)
Production of the "snake calendar"

Graphic supports

Folder # 32 limited to the single icon : « *finalization of the grazing plan* »

Approximate duration of the module:

90 minutes

IMPLEMENTATION

1. Introduction / transition

Have participants look closely at the map of their village lands that they prepared themselves, and discover what is still missing before it can be a true grazing management plan. The missing element is an indication of livestock movements and the dates of these movements.

Remind them also that they are only working on the plan for the rainy season. A new plan for the dry season will need to be worked out at the end of the rainy season.

2. What is the status of the plan ?

Take out the icons for the three modules previously done, during the training session. Ask participants to state what they remember about each of these modules:

- "*range-land mapping*" module : participants have identified the paddocks, the itineraries of the animals, and the main characteristics of each paddock.
- "*Relative value of paddocks*" module: participants adjusted the length of the animals' stay on each paddock;
- "*Events and constraints*" module: Participants identified the seasonal events and constraints that must be taken into account in the final grazing plan.

3. Livestock movements within the paddocks

✓ *Circuits of livestock movement*

Remind participants first that the animals' itineraries were mentioned in connection with the « *range-land mapping* » module. For this exercise, they will need a copy of the grazing area map drawn up during the preceding planning modules.

If the participants live in encampments scattered over the grazing area, you will have to ask them to organize themselves into as many small groups as there are encampments. If, on the other hand, the encampments are grouped together, participants will remain in a single group. For each encampment introduced, the exercise will consist of ensuring that animals' daily movements between the encampment, the grazing area and the water point can occur under good conditions and cover distances acceptable for the animals and their keepers.

The exercise must be done for both the rainy season (when there are often ponds in the paddocks) and the dry season (when ponds are dry and animals must cover greater distances to get water.)

✓ *Identification of available paddocks*

The information needed to execute this step in the finalization of the plan is entirely contained within the "calendar of events" prepared during the « *events and constraints* » module ; have the participants refer back to that.

- ✓ *Order of utilization of paddocks*

  Once participants have identified the paddocks that will be unavailable at one time of year or another, they should choose the order in which the paddocks will be grazed by the herd. This order must also take into account the foreseeable constraints recorded in the aforementioned "calendar of events". For example, a decision should be made to pass through the best quality parcels at the time when calves and lambs are being born. On the other hand, grazing in bottomlands will be postponed until the end of the rainy season when there is less risk from parasitic insects, and son on….

- ✓ *Duration of stay within the paddocks*

  Once the participants are satisfied with the circuits envisaged, ask them to indicate the intervals of stay on each paddock, which have been established at the end of Module # 30 "*Relative value of paddocks*". For example, three days in paddock 1, with an arrow pointing towards paddock 4; two days in paddock 4, with an arrow pointing towards paddock 3 ; three days in paddock 3, and so on, until all available paddocks have been covered for this rainy season. Point out that the numbering of the paddocks, done at the time they were given names ("*range-land mapping*" module) bears *absolutely no* relationship to the order in which they are grazed by the livestock, which may be entirely different.

4. Preparation of the roll-out or "snake calendar"

- ✓ *Preparation of the visual aid known as the "snake calendar";*

  At this stage, all the information needed to compile the management plan has been recorded on the map and on the "*calendar of events*". This data must now be represented on the "*snake calendar*", which rolls out around the map of village lands.
  (If participants seem a bit lost, the facilitator can have them take a quick look at an example of a management plan obtained elsewhere.).

  Since the seasons do not correspond to the half-yearly approach adopted, the grazing management plan for the rainy season will be preceded by the end of the cool season and will be followed by the beginning of the dry season.

  The "*snake calendar*" consists of a continuous unbroken line going all the way around the map of the grazing area. Since every management plan is supposed to cover roughly one half of the year, ask participants to subdivide this line into 6 equal parts (for the months), 27 small sections (for the weeks), and 185 units (for the days). The participants will proceed in various ways: allow them to work it out themselves.

- ✓ *"Marking" of the agro-pastoral year*

  Since the "*snake calendar*" covers only a part of the year, ask participants to decide when they want it to start. In other words, what is the beginning of their agricultural year ? Some communities will choose the beginning of work in the fields in the spring, or the beginning of the rainy season in summer. It is up to them to choose where to 'mark off' their "*snake calendar*" a the point where they want the "snake" to begin.

- ✓ *Calendar of movements :grazing management plan*

  Finalization of the grazing management plan consists simply of making small marks on the « snake » in different colors for each change of paddock, based on the numbers and arrows inscribed a little earlier on the paddocks. By writing the number of the paddock opposite the corresponding segment of the "*snake calendar*". During implementation, herders (who call the paddocks by their names) as well as outsiders (who refer to them by numbers) will be able to verify at any time where the animals are on the grazing area, by refering only to the grazing management plan.

  When the "snake" is entirely covered with data (dates of livestock movements, paddock numbers, etc.), the community's grazing management plan is complete. Congratulate participants and applaud enthusiastically.

5. Lessons to be learned: wrap-up skit using the icons

- ✓ *Putting the holistic model in perspective*

  Acknowledge that the four last modules were a bit complicated, to the point where it was sometimes difficult to completely understand what was going on. This is why a bit of review may be helpful. Take out the following icons and ask participants to explain the meaning of each one:

  - ♦ Remind those present that at the beginning of the training session, participants agreed on a *landscape goal* that they would like to see materialize around their village;
  - ♦ After that, the *ecosystem's building blocks* were studied, in order to identify the village lands' "*weak link*";
  - ♦ Then, an effort was made to better chose the *tools* capable of rectifying the existing situation, using animal impact and time, in particular.
  - ♦ Finally, a *grazing management plan* was established.

- ✓ *Preparation of the wrap-up skit on the holistic model*

  Ask participants to consent once more to act out a small theater piece, but indicate that the facilitator will neither designate the characters nor suggest the plot.

  This time, it is up to the participants themselves to create this short performance on the basis of the four icons they have just been shown: the *landscape goal*; the *ecosystem's building blocks*, the *weak link* and the *management tools*. The participants are invited to portray as many characters as they want and to come up with any story, provided that these four ideas are included.

  You should ensure that participants have a good understanding of their task. You give them the icons so that they can remember what they are supposed to do, and give them 15 minutes to prepare the skit. After a few minutes, you check to see how far along they are.

  When they are ready, organize the presentation, have the audience and actors take their places, and begin the skit, which will last about five minutes. Once the presentation is over, applaud, and ask the audience to interpret the skit's main message. Is it clear to everyone that the grazing management plan that has just been finalized is supposed to enable them to use *tools* that will strengthen the *weakest link* in their ecosystem and that in this way they have a chance to modify the *landscape* in a way that will allow them to achieve *their goals* in terms of production and quality of life?

6. Transition to implementation of the management plan

If the participants have no further questions or comments, explain to them that with this module, they have completed the instructional unit on *planning of grazing* (take out the icon representing « *finalization of the grazing plan*»). Place the generic icon for the « *planning of grazing* » unit on the mat, and place the icons for the four modules next to it.

Announce to participants that the next instructional unit will deal with herd management, and that subsequent modules will cover aspects of the implementation of the grazing management plan developed during the present module.

INSTRUCTIONAL UNIT EIGHT

HERD MANAGEMENT

Introduction to the instructional unit on herd management

Introduce this instructional unit by saying that it deals with a subject raised several times during the previous training sessions, i.e.., the number of animals, how they should move around, and how they should be kept. Ask participants to cite some of their concerns in this regard :

- Are animals belonging to outside users a problem when they move to and from pastures, through their grazing area?

After hearing one or two concerns, explain briefly how they are going to tackle these issues in this first module, and then in the other modules in this unit.

Show participants the icons for modules covered in previous sessions, such as:

- *"the whole to be managed"*;
- *"animal impact"*;
- "*time*"; and
- *"events and constraints ».*

Have participants to reiterate the meaning of each module in one or two sentences.

Then show the image of a herd moving along in front of an arrow that indicates movement. This will be the icon for these three new modules, since they deal with "*herd management"* Then display the icon.

MODULE # 33

HERD MANAGEMENT

NUMBER OF ANIMALS

PEDAGOGIC ANALYSIS

Desired situation:

- The community involves outside users in planning the management of pastoral resources;
- It accepts the presence of animals belonging to outside users as something to be assumed in this planning;
- In exchange, outside users participate actively in this planning and adhere to the community's management rules.

Current situation

- Herders generally think that the excessive number of animals, along with insufficient rain, is the essential reason for pastureland deterioration.
- They therefore view with trepidation the arrival of animals belonging to other users, even those with acknowledged users' rights.

Disparity between current and desired situation

- Confusion as to the true causes of overgrazing;
- Misreading/underestimation of the potentially positive impact of livestock on soils and vegetation;
- Lack of awareness of the potential of collaborative action.

Objectives of the module

By the end of the session, the participants will be able to:

- recognize that livestock belonging to outside users is part of the "whole to be managed";
- explain the potentially positive impact of a large number of animals,

provided that time requirements are respected;

- ♦ assess, along with outside users, the carrying capacity of the grazing area, and design appropriate strategies.

Participants at Arfa Diguinat (Chad) discuss what attitude they should adopt upon learning of the imminent arrival of a group of transhumants; (37/02)

LOGISTICS

Target group:

The choice of the target group is left up to the community and the outreach team. It should include representatives of at least the following:

- the pastoral management committee
- auxiliary herdsmen
- shepherds or cattle drivers

Exercise utilized by the module :

Critical incident (Srinavasan, p. 110)

Graphic supports :

Folder # 33

Approximate duration of the module :

1 hour

IMPLEMENTATION

1. Critical incident :

- ✓ *Introduction* :

Explain that in this exercise, they will examine a case that may help them decide how to approach the issue of the number of animals. Ask participants to listen carefully to the presentation of the situation, since they will be asked to imagine the different stances that a given community could adopt when faced with such a situation.

✓ *Proposed scenario*

Imagine that, one fine morning, the inhabitants of a village discover with dismay that, during the night, a large group of transhumants has camped very close by. Representatives of these transhumants introduce themselves to the village chief to inform him of their intention to remain on his community's grazing area for an indeterminate period of time. The members of the community must decide very quickly how to react to this request, given the pressure represented by the number of additional animals belonging to the transhumants. The community seems to break down into two opposing camps:

Position of refusal	*Image*
Those in favor of this option do not want to accept transhumants grazing on their pastures, since they feel that they have made great efforts to improve it, and that there is no reason why outsiders, who did not participate in this effort, should take advantage of it. If the transhumants persist in their intention to use the grazing area, these villagers are prepared to call on the Administration and, if necessary, to resort to force.	# 3321 # 3322 # 3323
Conciliatory position	
The management committee which manages the pastures holistically feels that, despite the large number of animals they have, the transhumants can be accepted provided that they adhere to the rules that villagers impose upon themselves with regard to livestock movements among the paddocks in accordance with minimum resting and maximum grazing times.	# 3324 # 3325 # 3326

✓ *<u>The task</u>* :

Ask participants to discuss these two different attitudes and to decide amongst themselves which is the most appropriate. Be sure that the participants have thoroughly understood the two approaches to the problem, and what they are supposed to do. A spokesperson will present the group's conclusions after 10 to 15 minutes of reflection and discussion among them.

Specify that the participants must carefully examine the advantages and disadvantages of each approach :

- From the standpoint of *reciprocity*: indeed, if the community refuses access to the grazing area to transhumants this time, it may happen in the future that, in the event of a drought in their region, access to other grazing areas will be refused precisely because this group of transhumants was refused access;
- The *carrying capacity* of the grazing area, even if it is properly used, is not unlimited. In any case, however, if it were incapable of supporting any additional animals, it is probable that the transhumant herders, fearing hardship for their own livestock, would have chosen to stop somewhere else. Moreover, they have observed that overgrazing is attributable less to the number of animals than to the failure to observe resting and grazing times;
- *the impact* that a large number of animals can have on vegetation may seem devastating at the time, but they have also learned that, over time, this impact eventually helps improve the cycle of water and nutrients.

✓ *Sharing of conclusions* :

The group of participants presents its conclusions. It must provide arguments on the above-mentioned aspects to justify the position that it recommends.

2. Utilization of the critical incident

Thank the participants for the analysis and the quality of the discussion. Put an explicit end to the debate by saying that it will be worthwhile to step back a bit to examine the results of the exercise:

- What happened ? What attitude did the participants adopt?
- What are the reasons for their decision? Are they social ? Technical ? Economic?
- Why did the community reject the other approach?

3. Lessons to be learned from the exercise:

Summarize the *advantages* of the conciliatory position:

- in social terms, i.e.. with a view to reciprocity;
- in economic terms, i.e., as a function of the grazing area's carrying capacity
- in technical terms, i.e., in terms of value of the livestock impact

After this, the participants will summarize the *disadvantages* of the conciliatory position:

- in social terms : does not raise any issue;
- in economic terms: possibility of temporary tension about fodder availability and access to water;
- in technical terms: technical issues would be nonexistent if community rules are followed.

You can use this opportunity to start a discussion aimed at defusing the frequent hostility between herding communities and other competing pastoral groups, and to lay the groundwork for the module dealing with grazing "*conflict prevention* " (# 04) by asking the following questions:

- Do you know of any herding groups that frequent your grazing area habitually?
- Where do they come from ? How many time a year do they come ? Are there a lot of them? About how many of them do you think there are ?
- Do you ever leave your village lands with your animals ? Where do you most often go, and in what season?
- What relationship do you have with outside users ?
- Do you ever discuss with them the terms of their stay on your lands?
- Do the animals belonging to outside users have an effect on your grazing area ? What effect?

4. Transition to the module on "Moving herds between paddocks";

Show the icon representing « *number of animals* », which is the first of the three modules in this instructional unit, and place it next to the generic icon for the instructional unit;

Explain to participants that, after having studied the constraints envisaged in this module – i.e., the grazing area's overall carrying capacity – they will follow up with a module dealing with another aspect of livestock management, i.e., herd movements on the paddocks and the rules involved in this.

NOTE TO THE TRAINER

- In the event that the group of participants is too large to allow everyone to take part in the reflection, two or three sub-groups may be formed and can deliberate separately, conferring with each other before presenting their conclusions to the group at large.

- In this type of exercise, it is essential that the group understand thoroughly the nature of the task at hand. You should accompany the group in its deliberations to ensure that this is the case, and also make the required adjustments to your presentation.

MODULE # 34

HERD MANAGEMENT

MOVING HERDS BETWEEN PADDOCKS

PEDAGOGIC ANALYSIS

Desired situation:

- Herders are motivated to work together.
- They organize themselves at the family level (i.e., there is communication between owners and shepherds/cattle drivers).
- They accept community rules (i.e., the management plan is applied)
- They communicate with transhumant herders in order to persuade them to follow the management plan.

Current situation

- There is great reluctance to work together and cooperate.
- Animals from different herds, unused to being kept together, tend to fight.
- There is a fear of disease transmission.
- Transhumant herders keep their distance from the community.

Disparity between current and desired situation

- Lack of collaboration and lack of will to conform to a common set of rules;
- Herd driving practices consist of keeping herds as far from each other as possible.

Objectives of the module

By the end of the session, participants will be able to:

- See the relationship between time management, parceling and herd movements on the paddocks ;
- Explain the need for cooperation among all users in drawing up a management plan taking into account constraints that hamper livestock movements on the grazing area.

LOGISTICS

Target group:

The choice of the target group is left up to the community and the outreach team. In any case, the target group should include representatives of at least the following :

- the pastoral management committee
- auxiliary herdsmen
- shepherds or cattle drivers

Exercises utilized by the module :

Brainstorming
Role-playing

Graphic supports :

Folder # 34

Approximate duration of the module :

1 hour

IMPLEMENTATION

1. ***Introduction***

Agree with participants that they are now all convinced of the need to adhere to grazing and resting times for plants, of the advantages and feasibility of animal impact, and that the parceling of the grazing area is the way to put the whole thing into practice. Explain that the present module shows how to go about implementing these ideas, given the current dispersal of herds in the far reaches of the grazing area.

2. Brainstorming : Livestock movements

The question is the following : "*how can one ensure that all the animals belonging to a single community* (which are grouped into a variable number of herds of differing sizes) *are moved about in such a way that they graze together on a single paddock ?*"

Together they shall imagine various possible methods, after which they will discuss the advantages and disadvantages of each. At this point you place on the mat the three small posters representing the strategy for occupying the parcel.

- ♦ Various small family herds, each led by a herdsman, are spread out over the entire paddock being utilized ;

- Owners start to group small herds into a smaller number of medium-sized herds ; or
- Stockraisers decide to group all their animals in a single large herd for the duration of the grazing, it being understood that the small herds shall be reconstituted when they leave the grazing area and return to their owners' corrals.

3. Brainstorming: advantages and disadvantages

✓ *Advantages of grouping*

You will then have participants discuss the comparative advantages of grouping animals, or of keeping them in small family herds. The following ideas might pop up:

- The grouping allows for considerable labor savings, and indeed makes it possible to reduce the number of herdsmen ;
- It also allows for more efficient guarding : when the animals are in a single large compact mass, it is more difficult for them to escape the notice of the drivers or to go outside the boundaries of the paddock;
- The animal impact of a grouped herd is more efficient than that of small dispersed herds;
- With regard to overgrazing, it has been noticed that it is more difficult for grouped animals to pick and choose their preferred forage plants, and that grouping therefore reduces overgrazing and encourages the consumption of less desired plants;
- By moving each day to a different part of the same paddock, the grouped herd ensures that each day there will be fresh, ungrazed fodder.

✓ *Advantages of keeping small herds*

- This approach is, of course, the one currently used by herdsmen, who would generally prefer not have to change their habits;
- The animals are less nervous and aggressive and fight less (although they also adjust quite well to grouping);
- In the event of contagious disease, herd dispersal is supposed to reduce the risk of transmission (although, in a village, contamination between different herds happens in most of the cases);;
- If water pumping equipment has small output capacity, it is more practical to provide water to small herds throughout the day than to a single large grouped herd.

4. Utilization : advantages and disadvantages of the two approaches

Lead a discussion, in turn, on each of the three images submitted to the participants : the one of the small dispersed herds, the one showing animals grouped into medium-sized herds, and the one showing a single large herd.

Participants will discuss the advantages and disadvantages of each system. They must realize that there is no standard solution. Despite its advantages, grouping is not mandatory, and it is up to them to find the solution that best suits them. Immediate consensus is not being sought, but the community must in the end find a solution that all herders can agree with.

5. Role-playing : The recalcitrant herder

It is well known that the best laid plans (like the one they have just drawn up) are only theoretical until they are put into practice. What happens when the community organization does not work as predicted ? This is the situation faced by a community that decided to implement a management plan and is now encountering resistance from a group of herders who still want to do as they please, without heeding the agreements reached among the other members of the community.
State the content of the game, and ask for volunteers to play the roles of members of the community in question.

The characters

- Two brothers from a relatively well-off family ;
- Two members of the community's Management Committee ;
- Village chief
- One village herder who does accept the community rules.

The scenario

The community has unanimously (including the family that is now creating a problem) approved a management plan that began to be implemented by all the village's herders, with the exception of one recalcitrant family that wants to continue to graze wherever they please.
Naturally, this arouses the ire of the rest of the village and worries the Pastoral Management Committee, which fears that the management plan that took so much work and seemed to be yielding good results will be imperiled.

Role playing

After a few minutes of preparation on the sidelines, the characters appear before the rest of the participants and present the problem. Each character then tries to present his own arguments. Will they manage to persuade the recalcitrant family? 5 minutes.

6. Utilization of the role-playing and conclusion :

- What happened ?
- Where did the conflict come from ?
- Why has the family refused to adhere to the decision of the community of which it is a part?
- What are the risks involved in allowing non-adherence to this decision ? from the technical standpoint ? from the social standpoint ?
- What solutions could be envisaged ?
- What measures could be envisaged for dealing with recalcitrant herders?
- What is the meaning of the African proverb "One rotten peanut can spoil the whole bag" ?

7. Transition to the module on "Supervising the herd" (# 35)

If the participants have no further questions or comments, show them the icon for the « *moving herd between paddocks* » module that was presented to them and put it beneath the icon for the « *herd management* » instructional unit and next to the icon representing « *number of animals*. »

Announce the next session, which will deal with the guarding and supervision needed to implement herd movements over the paddocks.

MODULE # 35:

HERD MANAGEMENT

SUPERVISING THE HERD

PEDAGOGIC ANALYSIS

Desired situation:

- The entire *community is involved* in guarding and supervising livestock.
- Guardians are *qualified*, (i.e., they have helped draw up the management plan), they have the *means* to move about quickly (e.g., horses, mopeds, etc.) and are *motivated* (i.e., they inform outside users of the utilization rules set out in the management plan).
- *They are assisted* in their task by the auxiliary herdsmen and the rest of the community.

Current situation

- Herd guarding is done by old people, women and children who lack the physical strength (to drive animals far from the encampment), the authority (to convince outsiders to obey community rules), and the means of transport (for quick movement) required to adhere to a management plan.
- Excessive dispersal of herds requires a great number of guardians.

Disparity between current and desired situation

- Lack of qualification, authority and commitment.

Objectives of the module

By the end of the session, the participants will be able to:

- Describe an improved guarding system that could be set up in their community, detailing the status of herdsmen, their resources and methods of collaboration, information and communication ;

- ♦ Explain why guardians and herdsmen cannot simply be implementing agents, and how they must have the means to help enforce the management plan, monitor vegetation, and communicate with other users.

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. In any case, the target group must include representatives of at least the following:

- the pastoral management committee
- auxiliary herdsmen
- shepherds or cattle drivers

Exercises utilized by the module :

Unserialized posters (Srinavasan, p.89)
Working groups

Graphic supports :

Folder # 35

Approximate duration of the module

1 hour

Horses are certainly the most efficient means of supervising livestock, especially if herdsmen enjoy them as much as they do in Arfa Diguinat (Chad); (36/03)

IMPLEMENTATION

1. *Introduction: transition from the "moving herds between paddocks" module*

Remind participants that they have so far discussed new methods of grazing land management, the success of which depends to a great extent upon the quality of livestock guarding and supervision. In this session, they will examine this question in more depth.

- Do they usually supervise their livestock ? If so, why ?
- How do they guard their livestock?
- How do they think it could be done more efficiently ?

2. Unserialized posters

Place the unserialized posters describing problems that can be caused by inefficient guarding on the mat in front of everyone. Ask participants to *interpret* them and then to *comment on them.* The idea here is to represent the various types of livestock guarding responsibilities that have to be assumed if the parceling into paddocks (with all its advantages) is to succeed. Let participants discuss for a few minutes, then ask :

- Do these images represent situations that you feel you can already handle well with your herds?
- In these images, do you see situations that could come up, but that you don't yet feel you could deal with ?

3. Stacks of cards: guarding/supervision responsibilities:

Explain to participants that the following exercise will consist of drawing up a list of tasks to be assumed by various members of the community. Ask the following questions:

- Who are the main « actors » in the area of guarding and supervision ? (Answer: the community as a whole, herdsmen and auxiliaries);

Bring out the image of each of these « actors » as they are identified, and ask a question about each one in turn :

- Show the image of the *herdsman* : what is his main role in guarding and supervision (Answer: driving the herds)
- Show the image of the *auxiliary* : what is his main role in guarding and supervision (Answer: supervising the boundaries of the site);
- Show the image of the *community* : what is its main role in guarding and supervision? (Answer: making and enforcing rules in all circumstances, especially in the village);

Place the three images of the « actors » thus identified on the mat, and ask participants to sort the images illustrative of problems caused by poor guarding into three piles (depending on which person(s) are responsible). Certain tasks may be shared by two or three entities. Have them explain what their understanding of this is.

4. Utilization of the exercise

- Was the « who does what » exercise easy or difficult ?
- What do the participants think of the result of the exercise ?
- Are there guarding and supervision responsibilities that have not been accounted for in these images ? (At this point, one can quickly sketch the corresponding pictures and add them to the existing pile of images);
- How do they intend to respond to cases where responsibility is shared by several groups ?
- How can one ensure that the three groups of actors understand their respective share of the responsibility?
- Among these responsibilities, which ones are already handled by groups to which they were assigned during the exercise?
- Among the responsibilities identified, which are the easiest to carry out and which are the hardest? Why ?

Indicate to participants that the next step in this module will allow them to plan how these responsibilities will be implemented.

5. Implementation of the community's responsibilities : working in sub-groups

Divide the participants into three small groups --- the *community*, the *herdsmen* and the *auxiliaries* --- and give them the image corresponding to each of these sub-groups, as well as the stack of images representing the tasks they are supposed to perform. Be certain not to forget the tasks shared by several actors. Explain that it will now be necessary to think « *differently* » about how to carry out these various tasks.

Introduce each idea by referring to the following table and display the image illustrating the situation over which they want to gain control by describing clearly what needs to be done.

Status, recognition, ***motivation***	Are these persons motivated ? Do they do their work with energy and conviction ?
Means of ***moving*** about *(especially for herdsmen and auxiliaries)*	What means to these people have available to do their work ?
Participation in ***planning*** and monitoring (*especially herdsmen and auxiliaries*)	Are these people involved in establishing management plans ? In their monitoring ? How is information gathered and broadcast?
Qualifications	Are the current herdsmen qualified for the responsibilities that have just been identified ? How are they recruited? How are they remunerated?

Ask each sub-group to discuss the following points :

- Given your group's responsibilities (as represented in the images), what elements need to be considered in organizing the guarding and supervision of livestock in your community?
- Consider the four criteria set out in the preceding table.

Allow 15 minutes for this task, and ask the three sub-groups to present the results of their reflection to all the participants. Allow enough time for reactions and questions. Ask the community's "secretary" to record the ideas expressed, and point out that these ideas will need to be reported back to the community at large so that decisions can be made.

6. Conclusions

- What conclusions can be drawn from this module ?
- What is the difference between the traditional system of herd guarding and the form of organization that would result in more efficient livestock management?
- What would be the advantages of implementing such a system of livestock guarding?
- Do they think it is feasible ? Why ?

- Are they going to try to persuade members of the community who are absent, of the importance of improving the herd guarding system, even if the introduction of such a system is a bit complicated ?

7. Transition to the instructional unit on "Participatory monitoring"

If the participants have no further questions or comments, conclude the « *herd management* » instructional unit by displaying its icon, as well as the three icons for the modules covered in recent training sessions.

Indicate that the next instructional unit will deal with one of the tasks mentioned in this latest exercise, namely : monitoring of the execution of the management plan and of the progress achieved.

INSTRUCTIONAL UNIT NINE

MONITORING AND RE-PLANNING

Introduction to the « observation » game

Ask participants to choose a partner and to sit down facing that person. Ask them to look carefully at their partner, noticing the clothes he is wearing, their color, accessories, etc. Then, ask them to turn away from each other and to change ***just one*** detail in their appearance. Just a single detail. Show, without speaking, how this can be done : remove your hat, roll up your sleeves, move a ring from one finger to another, etc.

After two minutes, ask participants to come back and look at their partners carefully once more. They will now have to guess how this partner changed his appearance. After two minutes (for the game must be played quickly), stop the game and ask the following questions :

- What happened ?
- Was the change difficult to see ? Why ?
- What lessons can one learn from this game ? (Answer: One must observe things attentively in order to perceive and remember them.)

Explain that this is exactly what they will strive to do during the next two modules, stressing how frequently one fails to observe properly and how important it is to do so.

At this point, display a pair of eyeglasses. Why do people wear glasses ? (Answer: in order to see clearly). This is why we have chosen eyeglasses as the icon for this instructional unit. They will study together how to better observe the things around them, so that they can better manage them.

MODULE # 36:

MONITORING AND RE-PLANNING

MONITORING: CHOICE OF INDICATORS

PEDAGOGIC ANALYSIS

Desired situation

The entire community identifies the landscape, production and quality of life indicators, gathers them together and analyses them.

Current situation

At the family level, people are of course aware of changes in landscape, income and living conditions, but this information is not pooled with that of other community members and is not consolidated at the community level with a view to correcting any deficiencies that might exist.

Disparity between current and desired situation

- When reflection occurs at the family level, it is very difficult to conceive of criteria/indicators covering all the elements of the desired objectives, on both an individual basis and a community basis;
- Results of this reflection are not consolidated with those of the rest of the community.

Objectives of the module

By the end of the training session, the participants will be able to identify their own measurable indicators pertaining to their goals in terms of landscape, production and quality of life.

LOGISTICS

Target group :

The entire community, with all its constituencies represented, should be involved with this module:

- men and women ;

- young people and the elderly ;
- herders and farmers, etc.

Exercises utilized by the module :

- "Observation game"
- Unserialized posters (Srinavasan, p.89)
- Brainstorming

Before getting into participatory monitoring, participants are invited to imagine how such monitoring fits in with the development of the management plan. (39/01)

Graphic supports :

Folder #36

Approximate duration of the module :

2 hours

IMPLEMENTATION

1. Reiterating the three-part goal

Place the three icons representing the three-part goal (("*landscape" (# 7)*, "*production" (# 6)* and "*quality of life" (#5)*) down on the mat and ask participants to recall what they mean. Then ask them to spend a few minutes discussing the three parts of their holistic goal. Insist that they provide details. This is very important, since they must subsequently choose their indicators on the basis of these details.

- How did they describe the « *landscape* » part?

- How did they describe the « *production* » part?
- How did they describe the « *quality of life* » part ?
- How did they base their management plan on the elements of the goal ?

2. Process of monitoring/re-planning

Next, place three other images down on the mat :

- ♦ the generic icon for "*participatory monitoring"* (i.e., the eyeglasses),
- ♦ the generic icon for "*planning of grazing*" (notebook and pen)
- ♦ two images of groups of villagers discussing the plan (#s 3620 and 3621)
- ♦ four arrows used in the modules on "*water cycle*" and "*nutrient cycle"* (# 8 and 9)

Ask participants to interpret these images and ask the following question:

- Can one establish a relationship among these images ?

Ask them next to arrange the images on the mat with the arrows going in the directions that seem most logical to them (as they did for the water cycle.) Let the participants manipulate and arrange the images for a few minutes. It is hoped that they will end up with a cycle (either open or closed) that consists, for example, of the following stages :

- establishing the *goal* (landscape, production, quality of life) ;
- planning resource management (« *planning* of grazing» icon also used for re-planning)
- "*monitoring*", observing, gathering (eyeglass icon)
- drawing conclusions, analyzing, *evaluating* (image of people gathered around a management plan, discussing it.)

If the arrangement of the images is *linear*, ask participants what they will do with the results of the monitoring at the end of the process (if they need to be re-incorporated into the cycle, then it is no longer linear). If the arrangement is a *closed cycle,* ask participants if the same cycle needs to be repeated again and again. (The answer is yes.)

- What is the point of monitoring and assessing the results of the implementation of the grazing plan?
- Are the participants accustomed to monitoring the results of their undertakings ?
- How do they do this? In a systematic way or in an *ad hoc* way?
- What is the point of monitoring the results of one's undertakings in a systematic fashion?

3. Indicators to be monitored

You must, first of all, ensure that the idea of an “indicator” is being accurately translated into the local language, and verify that it is clearly understood by the participants.

It might be helpful for you to refer to a tentative list, in Annex # 4, of indicators that might be utilized for the remainder of this exercise.

You will have to use a large number of images in this exercise (taken from the folders on previously completed modules). Indeed, since the idea of monitoring is to observe carefully, the participants will need to make a distinction, among all these images, between those that deserve to be kept and those that can be discarded. The aim is to choose the ***indicators*** that will serve as the basis for the monitoring. Ask participants to describe what they look for in their everyday life in order to determine:

- whether an animal is sick (Answer: it stops eating);
- whether the village is richer or poorer this year (Answer: new constructions are being built or not);

Ask the participants to cite a few more examples of indicators (to be sure that they have correctly understood ***the idea of an indicator*** before continuing the exercise).

What is an ***indicator***? It is the thing that one observes over a certain period of time and that shows, or indicates, changes that may have occurred over that time. These changes can go in the direction of ***progress*** or, on the contrary, towards ***deterioration***. Here are a few synonyms: sign, signal, symptom, mark, evidence, testimony, or message.

4. Choice of indicators : brainstorming

Ask the participants to keep in mind the elements of the "***holistic goal***" that they recalled at the beginning of the exercise. Prepare the follow-up to the exercise by asking them the following question:

- ***If they have set a goal for themselves, what do they need to observe in order to see whether they are getting closer to that goal and, if possible, assess how close they are getting?***

Ask the participants to cite at random all the indicators that might make it possible to check whether one is closer or farther from the desired goal. Find an image for each idea put forth, and spread them all out on the mat, or affix

them to the flip-chart. (Do not allow one person to hold all the images in his hands: the images must be visible to everyone at all times.)

At this point, you might refer to the tentative list (in Annex 4) of possible indicators for monitoring landscape, production and quality of life.

Allow the indicators to remain jumbled together for the moment; you will attempt later to sort out indicators of landscape, production and quality of life.

The indicators proposed may be a little vague at first. Get the participants to be specific about each indicator. For example:

Less specific	*More specific*
Fewer conflicts	Number/severity of conflicts over a given period
Stability of the population	The herd quits the village to other grazing areas for a shorter period of time
Vegetation has improved	Specific plant species have spread (which ones)
Soils are more fertile	Plants grow back more quickly, provide more forage
The village is richer	Construction of new concrete houses
Production has improved	Amount of millet and sorghum

Have the participants judge whether the chosen indicator can really "bear witness" to the state of the village's progress towards its goal. The indicator must therefore be concrete and observable, so that it can be measured periodically. Ask the participants to specify the unit that would be used to measure each indicator. For example:

Indicator	*Unit/measure*
Number/severity of conflicts	Annual frequency of conflicts (number)
Increased village stability	duration of transhumance (in days)

Development of plants to be promoted	Plant (a) density per m2 on paddocks Plant (b) density per m2 on paddocks, etc…
Plants grow back more quickly	Figure : mRT of the plant (a),(in days) Figure : mRT of plant (b), (in days), etc…
Construction of concrete dwellings	Figure : annual construction of concrete dwellings (number)
Yields of grain cultivated	Figure : yield, in kg/hectare (millet) Figure : yield, in kg/hectare (sorghum)

You may need to create new images for indicators imagined by the participants. Do not hesitate to sketch them yourself or, even better, to have participants draw them themselves.

Encourage the participants to be ***creative*** and ***productive*** with their ideas about indicators. From time to time, you may have to ask them to go back over the details of their holistic goal in order to keep them on the right track. However, the most important thing is to have an ***adequate number*** of indicators, to have ***specific*** indicators, and indicators that are ***understood*** by all participant.

5. Apportioning indicators among the three parts of the goal

Take out the three icons for the parts of the holistic goal: quality of life, production and landscape. Specify that it will be easier, in performing the following steps, to treat each part of the goal as a separate category. Ask the participants to :

- Group all ***landscape*** indicators beneath the landscape icon.
- Group all ***production*** indicators beneath the production icon.
- Group all ***quality of life*** indicators beneath the quality of life icon.

6. Conclusion and transition

Applaud the participants for having identified the indicators to be monitored "***with eyeglasses on***". Explain that the next module will be devoted to the collection, analysis and utilization of the information supplied by these indicators.

NOTE TO THE FACILITATOR

- *Priorities among indicators : three pile sorting cards" (Srinavasan, p.101)*

If the brainstorming session produces a large number of indicators, the list can be winnowed down by asking participants to sort the indicators they have chosen in order of their priority.
Ask the participants to study each image/indicator carefully, and to choose the ones that seem most useful and those that seem the least important to monitor. They should divide the indicators into three stacks:

- those that it is most important to monitor;
- indicators that are interesting, but not essential;
- indicators that it is least important to monitor.

- A half dozen indicators for each category of the three-part goal, or a total of 18 indicators, will probably be enough. If everyone is satisfied, the group can move on to the next module.

- Caution! The target group of the two participatory monitoring modules (# 36 and 37) is made up of the entire community, or at least of representatives of its main constituencies. Alert the community to this upon the conclusion of the preceding module.

MODULE # 37:

MONITORING AND RE-PLANNING

MONITORING: COLLECTION AND ANALYSIS OF RÉSULTS

PEDAGOGIC ANALYSIS

The entire community collects and analyzes the landscape, production and quality of life indicators, and uses them to revise its resource management plans.

Current situation

At the family level, changes in landscapes, incomes and living conditions are, of course, perceived. But this perception is not systematic and is not pooled with that of other community members or consolidated at the level of the entire community.

Disparity between current and desired situation

- When such a reflection occurs at the family level, there is no systematic collection or analysis of information.
- There is a total lack of consolidation of results of this reflection with the rest of the community.

Objectives of the module

By the end of the training session, the participants will be able to:

- collect, analyze, and record the results of their monitoring of the landscape, production and quality of life;
- gauge to extent of their progress towards their goal, and utilize these results to develop subsequent iterations of the process of planning resource management.

LOGISTICS

Target group :

The entire community, with all constituent groups represented, i.e. :

- men and women;
- young people and the elderly;
- herders and farmers, etc.

Exercises utilized by the module :

- Pocket chart (Srinavasan, p.93)
- Construction of a “monitoring table”

Graphic supports :

- Folder # 37
- Monitoring table from another community (when available)

Approximate duration of the module :

2 hours

The establishment of the monitoring table is a difficult exercise requiring a lot of creativity and a high level of participation. (40/03)

IMPLEMENTATION

1. Introduction: connections

Establish a direct connection with the preceding module by:

- ♦ asking participants to recall the indicators chosen during the preceding module on "*choice of indicators*" (# 36);
- ♦ asking participants, now that the monitoring indicators have been chosen, what tasks will be involved in developing a monitoring system.

After one or two ideas have been put forth (for this should not be an in-depth debriefing), tell participants that they must now develop the system for monitoring the indicators identified during the preceding module.

Explain that, for practical reasons, the next steps will proceed according to the three «categories», or parts, of the goal (i.e., landscape, production and quality of life), but that this classification may be abandoned at the end of the module and the indicators grouped together differently (depending on the frequency with which they are collected, for example.)

2. Who will collect the information? Pocket chart

First, spread out the images representing the ***landscape*** indicators identified during the preceding module along the vertical axis of a pocket chart (a technique with which participants are now familiar) and explain briefly that they must now decide who will be responsible for collecting this information. After having identified the people in charge of collecting ***landscape*** indicators, they shall move on to the choice of people who will collect ***production*** indicators, and, finally, to the choice of people who will collect ***quality of life*** indicators.

Conduct a small brainstorming session to go through the list of community members who might, in principle, be able to collect data on these indicators. Participants should be asked to make a clear distinction between people who are responsible for ***collecting*** information, and those in charge of ***reporting*** the results of the monitoring to the community.

For each idea, take out the image representing the designated person and place it along the horizontal axis of the table of folders (auxiliary, facilitator, village chief, family head, management committee, administration, etc., taking care not to forget the herdsman!). Leave an empty column on the right, which will be used to indicate the frequency of the data collection pertaining to the monitoring indicators.

Go over the indicators one after another, and ask the participants to identify the person or persons best suited for collecting information. Ask the “secretary" to check off the corresponding box. For example :

	Herdsman	*Auxiliary*	*Facilitator*	*Frequency*
Indicator 1	X			
Indicator 2			X	
Indicator 3		X		

Once all the ***landscape*** indicators have been covered, repeat the same procedure for the ***production*** and ***quality of life*** indicators. Additional sheets can be added and affixed to the bottom of the table. The resulting table may be quite long.

3. Frequency of data collection

Begin again with the ***landscape*** indicators.

Ask the participants if all the indicators need to be watched "***with glasses on***" all the time. (The answer is no: some things need to be monitored often, while others that take more time to undergo observable change, can be observed only episodically.) Give the following example:

- If one wants to monitor the ***Maximum grazing time (MGT)*** of a plant to be promoted, how frequently does it need to be observed? (i.e., after how many days?)
- If one wants to monitor the ***minimum resting time (mRT)*** of a plant to be promoted, how often does it need to be observed? (after how many weeks or months?)
- If one wants to monitor the ***relative value*** of the parcels, how often do they need to be observed? (Answer: at the end of each season).

Ask the participants to confer amongst themselves and to decide on a desirable frequency for the collection of data on each indicator displayed on the pocket chart and to record this in the column on the right, in days, weeks, or seasons.

After having finished with the ***landscape*** indicators, continue the exercise with the ***production*** and ***quality of life*** indicators.

At the end of the discussion, be sure that the frequency of data collection is realistic. Participants often tend, at the beginning, to schedule excessively frequent observations. Ask participants to think about the additional effort involved in a high frequency of data collection.

4. Recording the results : creation of the "monitoring table"

Ask the participants how one might record the collected data. (In a notebook, for example, so that it can be presented to village gatherings.) Indicate that they need to think about how the planning and monitoring notebook should be organized.

- Explain that the indicators requiring the same frequency of collection now need to be re-grouped. Have the participants detach the images corresponding to indicators that need to be monitored at similar intervals (e.g., days, weeks, months, seasons, years.)

- Caution ! When an image is detached, the community's secretary should be asked to write in its box, in the local language, what it represents.

Otherwise, the table of responsibilities would no longer be complete and might become unusable.).

- In the end, this exercise should produce at least three groups of indicators, sorted by frequency of collection (probably in terms of weeks, months and seasons). Place the first pocket chart prepared, i.e., the one indicating the people responsible for this data collection, to one side.

- Next, place a large sheet of paper down on the mat (or affix it to the wall if there is one near the meeting place, since the table may become quite large) on which vertical and horizontal lines will have been drawn in advance (this is not a pocket chart, but instead a double-entry table). At least 13 columns will be needed: the left-hand column will be for indicators, and those to the right will be for the 12 months of the year.

- Ask the participants to take a group of indicators that need to be collected with the same frequency, and to spread them out along the table's vertical axis: one image for each horizontal line.

- Ask the participants what should go on the horizontal axis. (Answer: the subdivisions of the calendar, or at least weeks and months.) Invite the participants to determine the number of intervals along this axis. ***Be careful*** **!** It may be more practical in this exercise to set up two separate tables: one for indicators to be monitored frequently (i.e., on a daily or weekly basis) and another for indicators that can be collected at wider intervals (i.e., on a monthly or seasonal basis).

- Next, ask participants how they can record the results of the monitoring: should they write in numbers or use some other method? (e.g., small twigs to symbolize the relative value of parcels). Discuss each indicator and decide on the best way to display the information in a concrete way. If participants seem to have a good grasp of the concept, let them continue on their own with the remaining indicators.

- Once the participants have finished with the first group of indicators, continue with the indicators that must be collected with the same frequency. Then go on to the group of indicators that must be collected at different intervals, and so on, until the frequency of data collection has been recorded for all the indicators.

- This is a big job and deserves to be applauded.

5. Analysis of results: practical exercise

Ask the following questions in order to introduce the idea that the results of monitoring must be brought to the attention of the community, which must in

turn analyze them carefully and use the data in the subsequent re-planning process.

- Up to now, how have they gone about recording the information that they wanted to monitor? (Answer: they didn't record anything, unless the technician did it.)
- Are they able to monitor and analyze such a large volume of information ?
- If the auxiliary (or some other community member) records the results of the monitoring, how can one go about discussing and analyzing them with the community at large? (Answer: the secretary reads the results and reports on them)
- What is the advantage of using a table like the one they have just created? (Answer: it is accessible to the entire community.)

Next, explain to participants that the following exercise will consist of studying the results, as presented in a table similar to the one they have just created. Tell them that they shall be looking at a table of monitoring results compiled for a village that they do not know, but that they can easily imagine based on the information contained in the table. Emphasize the fact that there is no need to describe this village to them since they have the results of the monitoring of its landscape, production and quality of life, which should be enough to give them a quite accurate idea of what is going on there.

On the mat, opposite the "secretary" who will play an important role if this is an illiterate community, place the table that has been prepared in advance according to the model created by the group, with the specific indicators and results. Ask the participants to compare its format to that of the table that they just created. Then, ask the group to study the data carefully and to comment on what it represents :

- How do they interpret the results of each indicator (Ask the participants to point them out and interpret them.)
- Are they able to perceive certain trends? Which ones? What does this tell them ?
- How do they interpret the numbers ?
- Do they see an improvement? A deterioration?
- Do they see seasonal variations?
- Overall, do they think this village is improving or not ? Why ?
- What other information would it be useful to monitor for this village ?
- How can one know if the management plan is producing satisfactory results?
- How can the village envisage utilizing the analysis of results?

Congratulate the participants on concretizing and analyzing such a large volume of information, which is something that even technicians themselves have a hard time doing well. Applaud.

6. Conclusions and transition to re-planning

Ask the participants for their reaction to the process:

- Do they think the proposed activities are feasible?
- Do they feel able to analyze and interpret monitoring results in this way ? Why or why not ?
- How many times per year do results need to be reported to, and analyzed with, the community?

Take out two or three “eyeglass” stickers, and have the participants place them on the calendar/management plan on the dates corresponding to times when they should analyze monitoring results and incorporate them into the management plan.

Explain that the next module will cover *“re-planning*”.

NOTE TO THE FACILITATOR

- This module is complex and includes many activities. If necessary, it can be split into two separate sessions.

MODULE # 38:

MONITORING AND RE-PLANNING

RE-PLANNING

PEDAGOGIC ANALYSIS

Desired situation

The herding community makes periodic adjustments (e.g., seasonally and in the event of a crisis) to its management plan, based on :

- These events;
- The results of monitoring;

It does this in an iterative fashion, with continual reference to the goal being pursued.

Current situation

- Absence of a management plan;
- Individual resource use;
- Strategies are adjusted, if at all, solely in response to new crises.

Disparity between current and desired situation

Adjustment tends to occur on an ad hoc basis, rather than as part of a process of coordinated adjustments.

Objectives of the module

By the end of the training session, the participants will be able to establish a revised grazing management plan that can be accepted and applied by all resource users.

LOGISTICS

Target group :

The choice of the target group is left up to the community and the outreach team. It should include representatives of at least the following:

- the pastoral management committee

- auxiliary herdsmen
- shepherds or cattle drivers

Exercise utilized by the module

Critical incident (Srinavasan, p.110)

Graphic supports

Folder # 38

Approximate duration of the module:

1 hour

The last exercise in the training cycle requires participants to re-assemble the images representing the iterative process of Plan/Monitor/Control/ Re-Plan. (40/17)

IMPLEMENTATION

1. Introduction : recall of the re-planning cycle or spiral

Display the diagram of the planning cycle/spiral that participants developed during the first "*participatory monitoring*" module, and ask them to imagine various situations that might require an adjustment to the management plan.

2. Critical incident : when is it necessary to re-plan ?

Explain to participants that they will now hear the story of a small community. At the end of the story, they will be asked to discuss the village's situation and to imagine at least three solutions/interventions that might be appropriate.

The herders of the little village of Tianga had been working for six months on their grazing management plan. The village's inhabitants were very pleased that they finally had an effective tool for managing their resources, and that the cooperation between users of the grazing lands was going well. They had overcome minor organizational problems at the beginning, and the itineraries for livestock movements within the paddocks seemed to be feasible. At the end of a single rainy season, the shepherds claimed that they could already see significant improvements in the plants that the community had decided to promote and monitor closely. These species were perhaps not recovering as rapidly as had been hoped six months earlier, but progress was undeniable.

The management committee was satisfied with the performance of the shepherds, who were proud that they had finally earned the committee's trust for their work, and that its importance was finally being acknowledged. Toward the end of the rainy season, the management committee had agreed on a date for a village meeting at which the results obtained would be discussed, and the management plan adjusted for the dry season. Everyone was perfectly aware that re-planning was not something to be left until the last minute.

Three days before the meeting, however, a devastating brush fire destroyed a large part of two relatively high-value paddocks that were supposed to be used during the dry season. Luckily, the herd suffered no losses, but the previously-discussed changes to the management plan for the dry season were no longer valid, since they had relied heavily on the two ruined parcels. Everything needed to be re-started from scratch, or nearly so.

Convening an emergency village meeting, the Chief of the village opened the discussion by asking : « What do we do now ? »

Once the story has been told, ask participants if they have any questions. Then ask them to discuss it amongst themselves, and to come up with at least three strategies (i.e., solutions or interventions) that the villagers could implement to resolve their problem.

Make sure that participants have understood their task, and give them ten minutes to confer with each others and find appropriate solutions. Once they have begun to discuss, check once more to see that the task has been properly understood and that participants have designated a spokesman. The following are some of the ideas that participants may put forth:

- Subdivide certain paddocks that were not destroyed by fire;
- Change the transhumance dates (i.e., leave the grazing area sooner than planned);
- Get fodder from somewhere else;

- Change the itinerary within the grazing area, etc.

3. ***Reporting back and lessons learned***

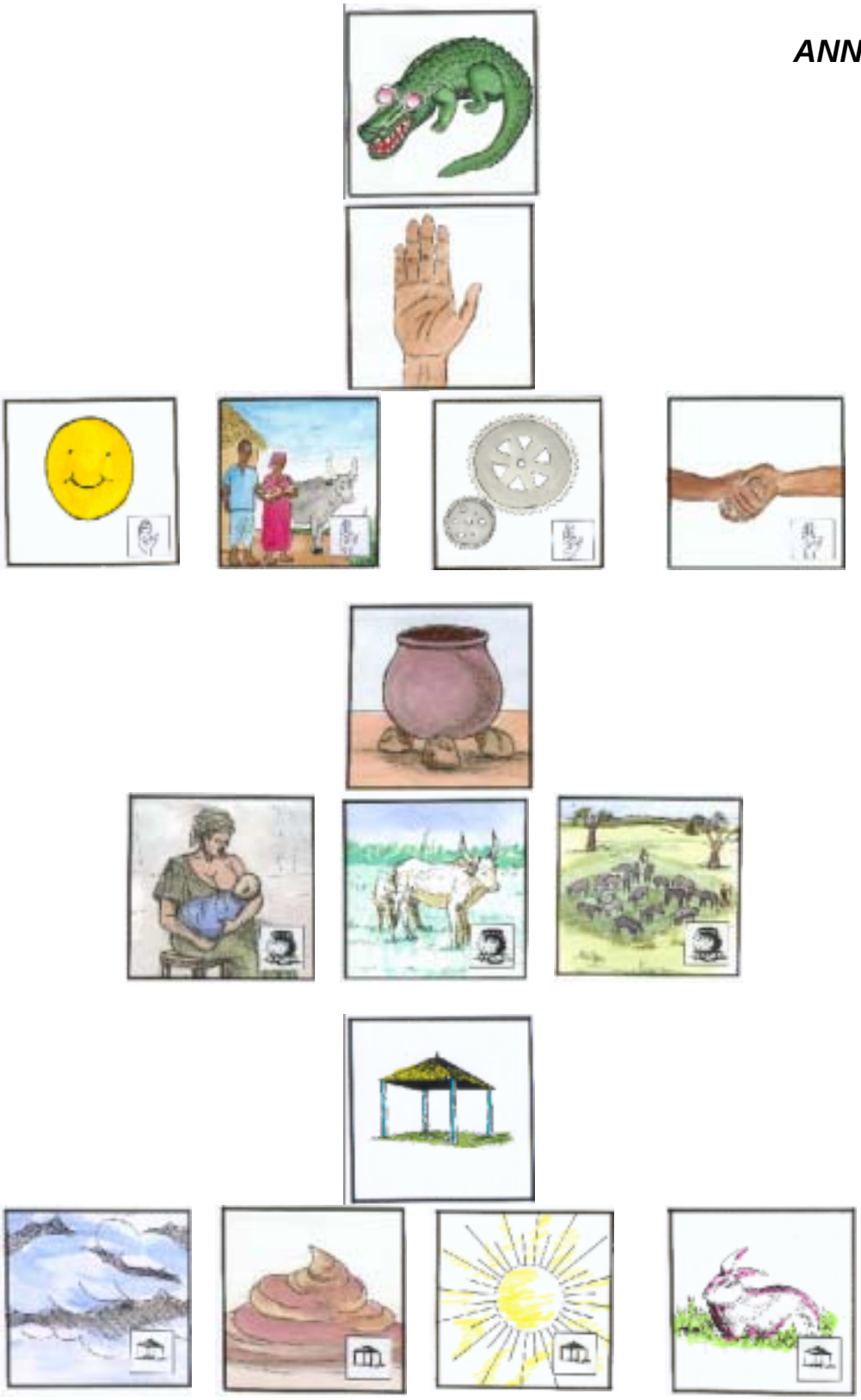
- Ask the participants to lay out the interventions/solutions that they envisioned to resolve the crisis;
- Why did they choose these solutions? (i.e., based on what information?)
- What were the circumstances that made it necessary to re-plan? (the brush fire? The change of season? The results of monitoring of the landscape during that period ?)
- Which events were unforeseeable? (Answer: the brush fire)
- Which events were foreseeable ? (Answer: the end of the rainy season, and the imminent arrival of the dry season)
- When one sees that results obtained are different from what was anticipated, what should be done? Wait until the end of the whole cycle? Adjust immediately?
- Under these circumstances, why is it important to monitor landscape indicators?
- Is the role of shepherds different from what it was traditionally? How different?
- Can one learn any lessons from this exercise? (Answer: mainly in terms of the re-planning intervals, i.e., *seasonal* re-planning vs. *crisis-based* re-planning);
- Should re-planning (i.e., setting up a new grazing management plan) be done on the basis of the initial management plan, or should a new map be copied and a new plan drawn up? What are the advantages of one solution over the other?

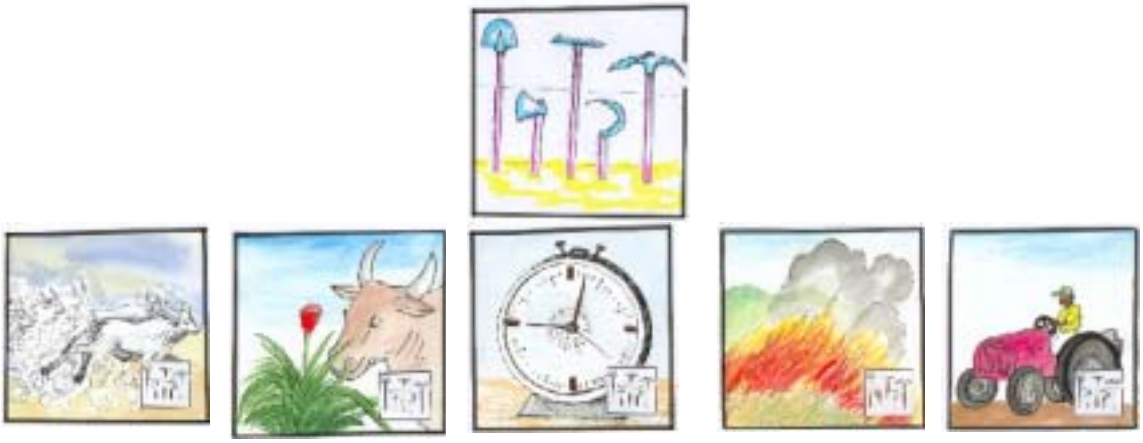
4. Transition

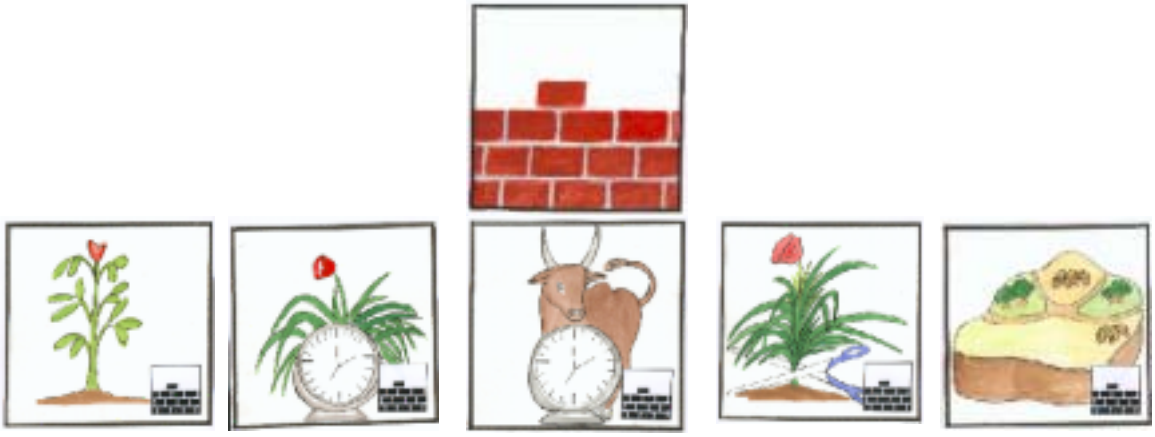
If the participants have no further questions or comments, conclude this instructional unit on "*Monitoring and re-planning*" by reminding them of the generic icon for this unit, the three icons of the holistic goal and the icon for re-planning (which is the same as the one for planning itself, but with a different sign in the lower right-hand corner.

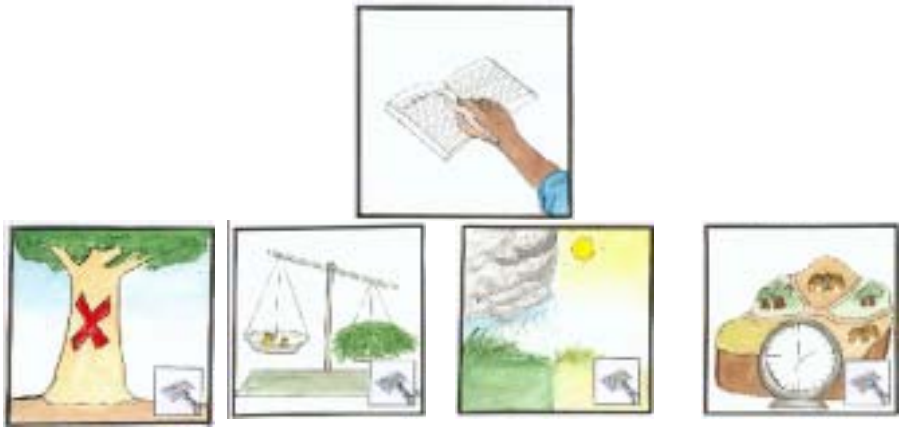
Indicate that the next module (module #4) will deal with conflict prevention, and that it will be the last one in this training program.

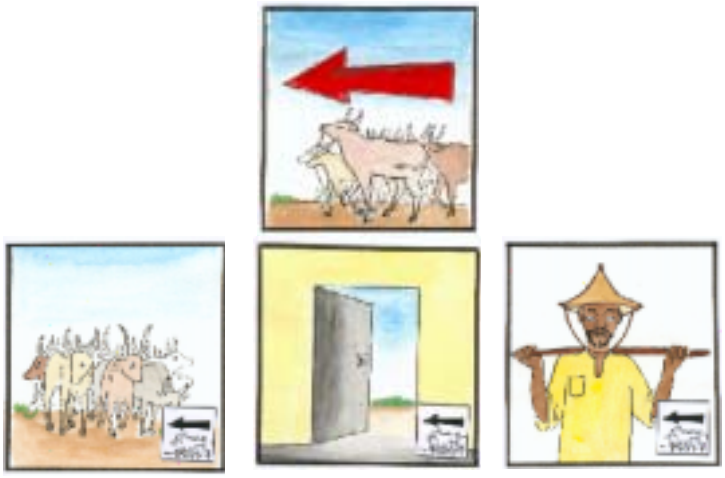
ANNEX # 1











ANNEX # 2

INSTRUCTIONAL FORMAT OF THE MODULES

Module		***Summary of pedagogical objectives (i.e., participants shall be able …)***	***Summary of activities***
Instructional Unit: Outreach (4 modules; duration: 6 to 7 hours)			
1.	***Trust building*** (2 hrs.)	• To express oneself freely ; to feel at ease and participate	• Customary greetings, • introductions; • Informal discussion with unserialized posters
2.	***The whole to be managed*** (45 min.)	• To describe the resources and their users, and explain why all the latter must be involved	• Illustration of the whole to be managed ; • participants create a map of their village
3.	***Community organization*** (2-3 hrs.)	• To design appropriate forms of community organization	• Inventory of forms of organization and of roles performed within the community; • Analysis of roles and responsibilities to be assumed
4	***Conflict prevention*** (30 min.)	• To develop conflict prevention and resolution strategies	• Lead-in exercise on exclusion vs. inclusion, to demonstrate the importance of the concept; • Brainstorming sessions on potential conflicts; • Use of story with a gap to help in delineating a prevention strategy.

Instructional Unit: Holistic goal (3 modules; duration: 3 hours)			
5	***Quality of life*** (1 hr.)	• To make a distinction between quality of life and the means of achieving it; • To explain the various ways of attaining the same goal	• Demonstration: the 3 stones of the hearth as a symbol of the 3 components of the goal • Participants express the village's "hopes and dreams" by using the unserialized posters (holistic goal)
6	***Production*** (1 hr.)	• To explain the importance of all production activities taken as a whole; • To explain how new activities envisioned can enable people to achieve a certain quality of life.	• Brainstorming session (with unserialized posters) on production activities compatible with the quality of life expressed by the community;
7	***Landscape*** (1 hr.)	• To explain how it is possible to restore the environment; • To describe the future landscape	• Introduction, using an open-ended story, to the idea that the environment can be improved; • Brainstorming session (with unserialized posters) on the future landscape envisaged by the community
Instructional Unit: Ecosystem's building blocks (4 modules; duration: 3 to 4 hours)			
8	***Water cycle*** (1 hr.)	• To explain the water cycle; • To explain the relationship between "effective" water, soil caping, and percolation	• Demonstration: the four pillars of a house as an introduction to this unit; • Participants create a concrete representation of the water cycle using the unserialized posters; • Demonstration of compacted vs. loosened soils

9	***Nutrient cycle*** (1 hr.)	• To explain the nutrient cycle • To explain the relationship between soil fertility and the nutrient cycle;	• Participants establish a concrete representation of the nutrient cycle using the unserialized posters;
10	***Energy flow*** (30 min.)	• To explain the role of soil, water and sun in forage production	• Participants establish a concrete representation of energy flow using the unserialized posters;
11	**Succession** *(1 hr.)*	• To explain the relationship between succession and biodiversity • To explain the relationship between biodiversity and stability;	• Exercise to establish a ladder of succession using unserialized posters; • Brainstorming session on vanished plant and animal species; • Discussion of relationship between succession, biodiversity and stability;
Instructional Unit: Tools (5 modules; duration: 4 to 5 hours)			
12	***Animal impact*** (45 min.)	• To explain the potencially positive impact of livestock on soil crust and vegetation • To explain how animal impact is a tool that can be chosen like any other	• Introduction to the concept of animal impact by means of a series of images (e.g., stampeding herd); • Discussion of the relationship between animal impact and building blocks of the ecosystem
13	***Grazing and rest*** (1 hr.)	• To explain the positive impact of rational grazing upon vegetation	• Analysis of 3 series of images: differences between overgrazing, rational grazing and prolonged rest.

14	***Time*** (1 hr.)	• To explain the effect of controlling time on pasture regeneration; • To explain the consequences of a failure to control time	• (Introduction of the instructional unit (*daba*, scythe, axe, etc.) • Story/anecdote to introduce the concept of time; • Analysis of 2 series of images to point up notions of resting time and the dangers of continuous grazing; • Concluding role-play.
15	***Fire*** (1 hr.)	• To explain the positive or negative impact of fire, depending on the circumstances; • To explain how fire is a tool that can be chosen like any other	• To be established at a later date;
16	***Technologies*** (1 hr.)	• To explain the difference between technologies and other tools discussed in this unit	• Brainstorming session on the best-known technologies; • Exercise comparing technologies with other tools
Instructional Unit: Testing guidelines (7 modules; 5 hours)			
17	***Weak link*** (1 hr.)	• To explain that the ecosystem functions like a chain with interconnected links; • Identification and strengthening of the weakest link.	• Introduction to the unit through presentation of the “filter” • Explanation of the game • “Weak Link” game • Utilization of results
18	***Cause and effect*** (30 min.)	• To distinguish the cause from its effects.	• Card game: participants must distinguish for a given issue, its cause from its effect

19	***Ecosystem as a whole*** (30 min.)	• To explain the possible impact of decisions upon the ecosystem, and why it must be taken into consideration	• Game about impact on the ecosystem: the “candidate tools” must go before a “jury” made up of building blocks of the ecosystem before they can be accepted.
20	***Additional resources*** (30 min.)	• To explain the idea of additional resources; • To identify the optimal allocation in view of a given objective;	• Investment game: players can “invest” (with play money) in the tool they think will have the maximum yield in view of the goal being pursued.
21	***External dependence*** (45 min.)	• To evaluate their own capacity to ensure the sustainability of investments	• Game: brainstorming session and comparison of resources needed for two different technologies
22	***Society and culture*** (45 min.)	• To evaluate the acceptability of a given action for the various human groups both within and outside of the community	• Role-playing in which participants identify and discuss the importance of the test
23	***Synthesis of tests*** (1 hr.)	• To explain why tools must be tested; • To use the battery of 6 tests;	• Participants review in turn several tools using the pocket chart;
Instructional Unit: Management principles (5 modules; 4 to 5 hours)			
24	***Plants to be promoted*** (1 hr.)	• To choose forrage plants the development of which would improve the quality of grazing lands	• Introduction to the instructional unit: the bricks used to build the wall; • Brainstorming session on potential plants, followed by a brainstorming session on selection criteria • Choice of plants to be promoted, using a pocket chart

25	***mRT: minimum resting time*** (1 hr.)	• To determine the mRT (in rainy and dry seasons) of plants that herders want to rehabilitate	• Series of images to outline the mRT concept; • Discussion and determination by the group of mRTs of plants to be promoted
26	***MGT: maximum grazing time*** (45 min.)	• To determine the MGT (in rainy and dry seasons) of plants that the population wants to rehabilitate	• Series of images to outline the MGT concept; • Discussion and determination by the group of MGTs for plants to be promoted
27	***Overgrazing*** (1 hr.)	• To explain the relationship between adherence to the mRTs and MGTs of plants to be rehabilitated and the process of overgrazing	• Game using candy to introduce the concept of selection; • Open-ended story (illustrated) and discussion to develop the concept of overgrazing
28	***mRT, MGT and division into paddocks*** (1 hr.)	• To determine the ***number*** of paddocks needed in order to adhere to the mRTs and MGTs of species to be promoted	• Interactive presentation of the idea of dividing grazing land into paddocks; • 2 practical exercises: one concrete example and one based on species to be promoted
Instructional Unit: Planing of grazing (4 modules; 4 to 5 hours)			
29	***Range-land mapping*** (90 min.)	• To divide the grazing area into paddocks, indicate the boundaries of these paddocks, and identify them by assigning names to them.	• Presentation of the instructional unit: hand, ballpoint pen and notebook • Production of the map 1) in the dirt and 2) on paper; • Discussion of markers, division of site into paddocks and naming of paddocks • Walk-through of paddocks, followed by a discussion of how to go about creating them.

30	***Relative value of paddocks*** (1 hr.)	• To gauge the relative value of each paddock and program livestock movements	• Brainstorming session on factors determining relative value • Valuation of the paddocks by placing pebbles on the map • Discussion: duration of stay on the parcels
31	***Events and constraints*** (1 hr.)	• To identify events and constraints to be taken into account in planning; • To define strategies and find solutions	• Brainstorming session on events • Creation of a calendar • Study of constraints encountered and development of appropriate strategies
32	***Finalization of the manage-ment plan*** (1 hr.)	• To finalize an acceptable and implementable grazing plan	• Determination of livestock movements • Creation of a “snake calendar" on the map of the grazing area
Instructional Unit: Herd management (3 modules; 3 hours)			
33	***Number of animals*** (45 min.)	• To explain the potentially positive impact of a large number of animals; • To assess the capacity of the grazing area to support outside users and design appropriate strategies	• Introduction to the instructional unit: the herd moving in an “obligatory direction” • Critical incident exercise aimed at clarifying the notion that a large number of animals can have a positive impact.
34	***Moving herds between paddocks*** (1 hr.)	• To establish the relationship between time management, division into paddocks and herd movements on the paddocks	• Brainstorming session on the advantages and disadvantages of various herd driving methods; • Role-playing aimed at examining the importance of community organization in adhering to the plan

35	***Supervising the herd*** (1 hr.)	• To describe a system of improved herd guarding that would be set up by the community	• Exercise with unserialized posters to identify actors, followed by classification of responsibilities to be assumed • Work in sub-groups on factors to consider in assigning each party's responsibilities
Instructional Unit: Monitoring and re-planning (3 modules; 4 to 5 hours)			
36	***Monitoring: choice of indicators*** (2 hours)	• To identify measurable indicators relevant to landscape, production and quality of life	• Introduction to the instructional unit: the "Observation Game" presenting the idea of monitoring • Process of monitoring and re-planning, with unserialized posters • Brainstorming session with indicators and their allocation among the three parts of the goal
37	***Monitoring: collection and analysis of results*** (2 hours)	• To process the results of monitoring in such a way as to gauge whether the desired goal is getting closer or further away.	• Pocket chart used to identify persons responsible for data collection, and frequency of this collection • Creation of the table of results (Monitoring table) • Practical exercise: data analysis
38	***Re-planning*** (30')	• To establish a revised grazing plan that can be accepted and applied by all users	• Critical incident exercise used to elucidate reasons for re-planning

ANNEX # 3

GRAPHIC SUPPORT MATERIAL FOR THE MODULES

FOLDER # 0: LOGO FOR THE OUTREACH/TRAINING CYCLE

Icon (square image, 10x10 cm)

0001. Crocodile wearing eyeglasses

FOLDER # 1: TRUST BUILDING

Icons (square images, 10x10 cm)

Generic icon for community outreach

101. Palm of a hand

Icon: trust building

111. "happy face"

Unserialized posters (A4 format)

121. Cow in degraded grazing area
122. Conflict between herdsman and farmer
123. Woman milking a cow
124. Woman driving a flock of goats
125. Woman and child with nurse
126. Family eating a meal together
127. Woman chasing a cow out of her vegetable garden
128. Purchase of clothing for a child
129. Sale of a goat at the market
130. Nurse with patients
131. Representative of the administration visiting a village
132. Marriage
133. Brush fire
134. Extremely degraded landscape

FOLDER # 2: WHOLE TO BE MANAGED

Icon (square image, 10x10 cm)

211. Whole to be managed: village, family and cow

Village map:

- ✓ Bristol paper, 50x 65 cm.
- ✓ Pencils and erasers
- ✓ Felt-tip markers

Postcards (1/2 A4 format)

Users

221. Conflict between farmer and herdsman
222. Man cutting down grass
223. Man felling a tree
224. Stripping bark from a tree (harmful cutting)
225. Forest completely leveled, tree trunks carried away by truck
226. Transhumant Moors (w/ camels)
227. Transhumant Peuhls (w/ distinctive hat)
228. Woman carrying wood
229. Woman drawing water from a well
230. Village meeting (on a mat) with outside visitors (wearing Peuhl hat).

Landscape: use "ecological succession " module (Folder # 11, images 1121 through 1126)

Infrastructure

241. Mixed livestock herd
242. Vaccination crush
243. Mechanized well
244. Cistern trailer
245. Mill
246. Borehole
247. Farming equipment
248. Concrete houses (n.a.)
249. Dispensary.

FOLDER # 3: COMMUNITY ORGANIZATION

Icon (square image, 10x10 cm)

311. Organization: two intertwined mechanisms

Unserialized posters (1/2 A4 format)

Decision-makers

321. Village chief
322. Farmer
323. Herder
324. Woman
325. Hunter

326. Fisherman
327. Wood-cutter
328. transhumant Moor
329. civil servant
330. girl
331. boy
332. auxiliary (villager holding a notebook);
333. trader
334. notable personage

Tasks to be performed

341. herdsmen talking amongst themselves
342. herdsman talking to a farmer
343. herdsman talking to a transhumant herder
344. herdsman going out to meet a transhumant herd
345. discussions under a tree
346. training session
347. group leaning over a grazing area map (n.a.)
348. guarding the herd in the grazing area
349. watering the herd
350. young person with notebook using a tape measure (n.a.)
351. person handling money (n.a.)
352. protection of a cultivated parcel (n.a.)
353. vaccination of livestock.

Venn diagram

- ✓ Bristol paper, 50x65 cm.
- ✓ Felt-tip markers.

FOLDER # 4: CONFLICT PREVENTION

Icons (square images, 10x10 cm)

411. Conflict prevention icon: a handshake

Cards indicating reasons for conflict (represented by lightning bolt). 10 x 10 cm format.

421. Crops
422. Trees
423. Stock watering (well)
424. Grazing
425. Crowding/mixing of personal property in the village
426. Brush fire
427. Sick animal

FOLDER # 5: QUALITY OF LIFE

Icons (square images, 10 x 10 cm)

Generic icon: the Goal

501. Pot resting on three stones of a hearth

Specific icon: quality of life

511. Woman (from waist up) holding a baby

Unserialized posters (3 identical stacks, 1/2 A4 format)

Goods and services

521. Entrance to a mosque
522. television
523. radio
524. refrigerator
525. bicycle
526. jewelry
527. running water (faucet)
528. well water
529. borehole
530. electricity

Activities and status

541. Religion: reading the Koran
542. Schooling
543. Adult literacy training
544. Continuing living in the village
545. Becoming a soccer player
546. Having access to a maternity clinic
547. Joining the military or the police force
548. Becoming a civil servant
549. Going to live in the city
550. Having a large family and staying in the village

FOLDER # 6: PRODUCTION

Icons (square images, 10 x 10 cm)

611. Production icon: cow with calf

Unserialized posters (1/2 A4 format)

621. Farmer: peasant hoeing his field
622. Herder: mixed herd
623. Fisherman in boat with net
624. Hunter with rifle and game
625. Farmer sowing seed

626. Merchant in front of his store
627. Wood-cutter felling a tree
628. Handicrafts: women making mats
629. Weaver
630. Raising small animals: poultry and rabbits
631. Grain mill (with miller)
632. Small commerce (women selling vegetables at the market)
633. Woman working in her market garden
634. Woman milking
635. Woman making cheese
636. Tailor
637. Woman picking fruit in an orchard

FOLDER # 7: LANDSCAPE

Icons (square images, 10x10 cm)

711. Icon for landscape goal: luxuriant vegetation

Posters for story with a gap: (double A4 format)

721. Poster of Ndourndour in degraded condition
722. Poster of Ndourndour in rehabilited condition

Assorted images (1/2 A4 format)

Flora (vegetation)

731. Very large cultivated field
732. Banks of a river
733. Extremely lush underbrush
734. Pond
735. Cultivated hills
736. Village in the middle of the forest

Fauna (wildlife)

741. Deer
742. Wild boar
743. Monkey
744. Pelican
745. Hyena
746. Hare

FOLDER # 8 WATER CYCLE

Icons (square images , 10x10 cm)

Generic icon of the Ecosystem's building blocks

801. The four pillars of a traditional dwelling

Specific icon: Water cycle

811. Gray cloud in blue sky

Images for semi-structured exercise (1/2 A4 format)

821. Cloud without rain
822. Cloud with rain
823. Percolation into cultivated field
824. Torrential runoff
825. Evaporation from a pond, forest
826. 5 arrows, 16 cm long.

FOLDER # 9. NUTRIENT CYCLE

Icon (square images, 10 x 10 cm)

911. nutrient cycle icon: cow manure on the ground

Images for semi-structured exercise (1/2 A4 format)

921. Cow excreting manure
922. Cow nibbling grass
923. Fodder plants
924. 3 arrows, 16 cm long

Consolidation (images in 1/2 A4 format)

931. plant litter (crushed grass) on the ground
932. termite hill
933. representation of nutrient cycle

FOLDER # 10: ENERGY FLOW

Icon (square images, 10x10 cm)

1011. Energy flow icon: sun shining

Demonstration by facilitators: (Images in 1/2 A4 format)

1021. Sun
1022. Vegetation
1023. Arrow

FOLDER # 11: ECOLOGICAL SUCCESSION

Icon (square images, 10x10 cm)

1111. Succession icon: stylized rabbit

Unserialized posters (1/2 A4 format)

Degradation: (representation of various stages of degradation)

1121. Desert landscape
1122. Landscape invaded by sand dunes
1123. Emaciated cow in desert landscape
1124. Erosion in a stony creek bed
1125. Landscape consisting of tree stumps
1126. Landscape that appears to be regaining its plant cover

Restoration (process of restoration: use images from "future landscape" module: folder # 7)

Tallying vanished species

- ✓ About forty half sheets (cut the long way) of colored A4 paper);

FOLDER # 12: ANIMAL IMPACT

Icons (square images, 10x10 cm)

Generic icon for tools

1201. Farming implements (plow, axe, scythe) hanging on a wall

Specific icon: animal impact

1211. Cattle running in a cloud of dust.

Structured exercise: (2 series of 4 images, A4 format)

"Without impact" series (landscape with identical house in all four images)

1221. Dry season: average vegetation, a few motionless animals
1222. Dry season: reduced vegetation, same motionless animals
1223. Dry season: vegetation has completely disappeared, and the same animals are still there
1224. Rainy season (green grass): moderate vegetation, same animals

"With impact" series (landscape with identical tree in all four images)

1231. Dry season: large stampeding herd, followed by a herdsman and raising a cloud of dust;
1232. Ground after the animals' violent passage: plants are trampled, ground is strewn with clods of earth, no animals
1233. vegetation has recovered after the animals' passage: animals are no longer there, but it appears that the rainy season is approaching;

1234. Rainy season: animals graze on a luxuriant pasture.

FOLDER #13: GRAZING AND REST

Specific icon: Grazing (square images, 10x10 cm)

1311. Cow about to nibble a plant

Illustrated sequences (3 sequences of 6 images each, 10.5 x 25 accordion format)

	grasses	***calotropus***
1321. Overgrazing	Initially normal	Initially under control
1322. Overgrazing	Grows weaker	Spreading
1323. Overgrazing	Grows weaker	Spreading
1324. Overgrazing	Grows weaker	Spreading
1325. Overgrazing	Grows weaker	Spreading
1326. Overgrazing	Disappears	Has invaded everything
1331. Normal grazing	Initially normal	Initially under control
1332. Normal grazing	Stays the same/spreads	Remains under control
1333. Normal grazing	Stays the same/spreads	Remains under control
1334. Normal grazing	Stays the same/spreads	Remains under control
1335. Normal grazing	Stays the same/spreads	Remains under control
1336. Normal grazing	Stays the same/spreads	Remains under control
1341. Long rest	Initially normal	Initially under control
1342. Long rest	Initial growth spurt	Initial growth spurt
1343. Long rest	Stabilizes	Grows more dominant
1344. Long rest	Declines	Grows more dominant
1345. Long rest	Degenerates into a crown	Grows more dominant
1346. Long rest	Disappears	Is the only survivor

FOLDER # 14: TIME

Icon (square images, 10x10 cm)

1411. Time : alarm clock

Sequential posters (accordion posters)

Process of degradation: (6 images 11x25 cm)

1421. Cow is present: plant is flourishing
1422. Cow is present: plant has been grazed
1423. Cow is present: plant has been heavily grazed

1424. Cow is present: plant has been very heavily grazed
1425. Cow is present: plant is disappearing
1426. Cow is present: plant has completely disappeared.

Rational use (10 images, 11x30 cm)

1431. Without cow: plant flourishing
1432. With cow: plant starts to be grazed
1433. With cow: plant is grazed a bit more
1434. Without cow: plant is in condition in which cow left it
1435. Without cow: plant develops once again
1436. Without cow: plant continues to develop
1437. Without cow: plant has regained size it had in # 1431
1438. With cow: repeat of image # 1432
1439. With cow: repeat of image # 1433
1440. Without cow: repeat of image # 1434

FOLDER # 15: FIRE

Icon (square image, 10x10 cm)

1511. Brush fire

FOLDER # 16 TECHNOLOGIES

Specific icon: Technologies (square image, 10x10 cm)

1611. Tractor with driver

Tool reminder icons

1621. Animal impact (# 1211)
1622. grazing (# 1311)
1623. time (# 1411)
1624. fire (# 1511)

Unserialized posters (horizontal, 1/2 A4)

Structures

1631. barbed wire
1632. ravine correction
1633. shelter for livestock
1634. wells and watering troughs

Equipment

1641. sprayer
1642. trailer
1643. plow
1644. mill

Inputs

1651. improved seed
1652. veterinary drugs
1653. feed concentrate
1654. saplings from nurseries

Agricultural work

1661. clearing
1662. irrigation
1663. top dressing of crops
1664. fodder harvesting

FOLDER # 17 WEAK LINK

Icons (square images, 10x10 cm)

Generic icon: Testing guidelines

1701. Woman shaking a sieve

Icon: weak link

1711. A few links of a chain

"Weak link" game (2 sets of 4 Bristol cards, 15x21 cm) showing symbols of the four building blocks of the ecosystem, attached by a loop of string that players slip over their arms.)

Building blocks of the ecosystem

1721. Icon for water cycle (# 811)
1722. Icon for nutrient cycle (# 911)
1723. Icon for energy flows (# 1011)
1724. Icon for succession (# 1111)

Solar chain

1731. sun + plant
1732. plant + animal
1721. animal + paper money

FOLDER # 18. CAUSE AND EFFECT

Icons (square images, 10x10 cm)

1811. Cause and effect icon: hammer

Unserialized posters: *What is to be done?* (postcard size images, 15-21 cm)

1821. Man being hit with hammer
1822. Nurse

1823. Aspirin
1824. Glass of water
1825. Package of band aids
1826. Three characters shown (from the waist up): the one delivering the blows, the one receiving the blows and the third person who intervenes to stop the blows.

FOLDER # 19: ECOSYSTEM AS A WHOLE

Icon (square image, 10x10 cm)

1911. Ecosystem icon: 4 pillars of a traditional dwelling (# 801)

Pocket chart:

- ✓ Flip chart
- ✓ 6 envelopes 18x24 cm
- ✓ about fifty pieces of paper (business card size) for the vote

Icons of tests (square images, 10x10 cm) (for modules 8-11)

1921. icon for water cycle (# 811)
1922. icon for nutrient cycle (# 911)
1923. icon for energy flows (# 1011)
1924. icon for succession (# 1111)

FOLDER # 20: ADDITIONAL RESOURCES

Icon (square images,10x10 cm)

2011. Icon for additional resources: a few pieces of paper money

Pocket chart:

- ✓ Plywood panel
- ✓ 6-8 envelopes, 18x24 cm, to be affixed to the panel
- ✓ About 50 "ballots", business card size, preferably colored paper

Illustrations in the pocket chart (playing card size, 10.5x15 cm);

2021. Mixed herd (cattle, small ruminants, donkey)
2022. vaccination (drugs and syringe in foreground)
2023. jewelry
2024. bale of hay
2025. sacks of grain
2026. bicycle
2027. cart (without animal)
2028. farming implements: shovel, pickaxe, etc.
2029. concrete houses
2030. paper money

FOLDER # 21: EXTERNAL DEPENDENCE

Icon (square images, 10 x 10 cm)

2111. External dependence: donkey in foreground with truck in background

Brainstorming

Presentation of the subject (images,1/2 A4 format)

2121. New truck
2122. Donkey harnessed to a cart

Unserialized posters: illustration of brainstorming (images, 1/2 A4 format)

2131. Bale of hay
2132. Bucket of water
2133. Driver
2134. Can of oil
2135. Jerrican
2136. Insurance card
2137. Vehicle registration
2138. tire
2139. tool kit

FOLDER # 22. SOCIETY AND CULTURE

Icon (square images, 10x10 cm)

2211. Society and culture icon: village meeting under a tree

Maxi-flans: (silhouettes on 50x65 cm Bristol cards), or postcards (1/2 A4 format)

2221. Village chief
2222. His son
2223. Transhumant herdsman
2224. Technician
2225. District commander

FOLDER # 23: SYNTHESIS OF TESTS

Specific icon:

2311. Repetition of generic icon for test criteria: the sieve (# 1701)

Pocket chart

- ✓ plywood panel
- ✓ 6-8 envelopes, 18x24 cm, to be affixed to the panel
- ✓ About 50 “ballots”, business card size, preferably of colored paper.

Icons of the 6 tests

2321. chain: weak link (# 1711)
2322. hammer: cause and effect (# 1811)
2323. 4 pillars of the house: ecosystem as a whole (# 1911)
2324. bank notes: additional resources (# 2011)
2325. donkey and truck: external dependence (# 2111)
2326. meeting under a tree: society and culture (# 2211)

FOLDER # 24 CHOICE OF PLANTS TO BE PROMOTED

Generic icon Management principles

2401. a few bricks in a wall

Specific icon: identification of species

2411. plant with red flower

Icons for table of folders (10 x 10 cm cards)

- *Various types of plants*

2421. Grass
2422. Legume
2423. Creeping plant
2424. Succulent plant
2425. Shrub
2426. Tree

- *Selection criteria*

2431. Good nutritional quality for animals (small ruminants)
2432. Persists outside the rainy season (representation of the two seasons)
2433. Drought-resistant (sun)
2434. Produces abundantly (plant on grocer's scale)
2435. Also used by people (plant being picked by a women)
2436. Resists erosion (plant in a dried-out stream bed)

FOLDER # 25: MINIMUM RESTING TIME

Icons : *Specific icon:* mRT (square images, 10 x 10 cm)

2511. Plant with alarm clock in foreground

Sequence of illustration: use the 10 sequential images in accordion format,from the "time" module # 1431 through 1440;

FOLDER # 26: MAXIMUM GRAZING TIME

Specific icon: MGT (square images, 10 x 10 cm)

2611. Cow with alarm clock in foreground

Sequence of illustrations: use the same sequence of 10 images in accordion format from the “time” module #1431 through 1440, “ also used for the previous module.

FOLDER # 27: OVERGRAZING

Specific icon: Overgrazing (square images, 10 x 10 cm)

2711. Plant being cut off at the base with scissors

FOLDER # 28: mRT, MGT, AND DIVISION INTO PADDOCKS

Specific icon: Division into paddocks (principles) (square images, 10 x 10 cm)

2811. Image of village grazing lands

FOLDER # 29: RANGE-LAND MAPPING

Icons (square images, 10 x 10 cm)

Generic icon: Programming

2901. Hand writing with a pen in a notebook

Specific icon: dividing the grazing area into paddocks

2911. Icon for paddock creation: tree trunk marked with red paint

Illustrative labels for village lands map (square images, 5x5 cm)

2921. Crops
2922. Well
2923. Village
2924. Mosque
2925. Isolated house
2926. Health post
2927. Sand dunes

FOLDER # 30: RELATIVE VALUE OF PADDOCKS

Specific icon: overall capacity (square images, 10 x 10 cm)

3011. Handful of grass on a scale

FOLDER # 31: EVENTS AND CONSTRAINTS

Specific icon: seasonal events (square images, 10 x 10 cm)

3111. Landscape with rain on the left side and sun on the right side

Labels to be affixed to the grazing management plan (5x5 cm)

3121. Poisonous plant
3122. crops

3123. dried-up pond
3124. flooded parcel
3125. brush fire
3126. fly/ parasite
3127. milking of a cow
3128. calf suckling
3129. predators (jackal)
3130. harvest residues
3131. well (dried up)
3132. vaccination (syringe)
3133. arrival of transhumant herders
3134. cutting fodder with a scythe
3135. puffy cloud
3136. sun: excessive temperature (n.a.)
3137. conflicts
3138. felling of trees
3139. monitoring
3140. stock watering

FOLDER # 32: FINALIZATION OF THE GRAZING PLAN

Specific icon: grazing plan (square images, 10 x 10 cm)

3211. village lands image (# 2811), but with alarm clock in foreground

FOLDER # 33: NUMBER OF ANIMALS

Icons (square images, 10 x 10 cm)

Generic icon: Driving livestock

3301. Herd moving in the direction of a large red arrow

Specific icon: Number of animals

3311. Group of cattle crowded together

Icons for modules studied previously

3321. Whole to be managed (# 0211)
3322. Animal impact (# 1211)
3323. Time (# 1411)
3324. Events and constraints (# 3111)

Mini posters A4 format. (illustration of story)

3331. men quarreling
3332. discussion in the village
3333. arrival of administrative official
3334. discussion at the well

3335. watering of livestock
3336. man wearing *djellaba*

FOLDER # 34: MOVING HERDS BETWEEN PADDOCKS

Specific icon (square images, 10 x 10 cm)
3411. View of landscape through the door of a house

Posters: the various ways of proceeding (posters, format A4)
3421. Five small herds moving about separately
3422. Livestock grouped into three medium-sized herds
3423. All animals grouped into a single herd.

Reasons for reluctance to group herds (1/2 A4 format)
3431. Risk of contagion from sick animals
3432. Animals fight (n.a.)
3433. Watering takes too much time (n.a.)
3434. Animals get mixed up (n.a.)
3435. Animals are more difficult to supervise (n.a.)

FOLDER # 35: SUPERVISING THE HERD

Specific icon: guarding: (square images, 10 x 10 cm)
3511. Herdsman with turban and staff

Unserialized posters (horizontal 1/2 A4 format)

- *Images illustrating need for guarding*
  3521. Cow grazing in cultivated field
  3522. Cow wandering among houses (n.a.)
  3523. Herd being watered (n.a.)
  3524. Cow with calf, being milked near a house
  3525. Large herd on the move under the control of a herdsman
  3526. Fenced-in field, with animals outside (n.a.)
  3527. Large transhumant herd appearing on the horizon (n.a.)
  3528. One cow alone in the middle of the grazing area, with the rest of the herd at a distance
  3529. Cow tearing the thatch off the roof of a house
  3530. Sick cow amidst other healthy animals (n.a.)
  3531. Cow peering into a well from which women are drawing water
  3532. Ill-tempered bull chasing village children

- *Representations of people who can perform guarding tasks*
  3541. Herdsman (supervising the herd icon)
  3542. Auxiliary: young person with notebook (n.a.)

3543. Supervision committee: group of men (n.a.)
3544. Women with cattle switches
3545. Children with cattle switches
3546. Old people with cattle switches
3547. Farmer (with his *daba* on his shoulder)
3548. Hunter with his rifle

FOLDER # 36: MONITORING: CHOICE OF INDICATORS

Icons (square images, 10 x 10 cm)

Generic icon: Monitoring and re-planning
3601. Pair of eyeglasses

Specific icon: Monitoring: choice of indicators
3611. 'holistic goal' icon (# 501) with 'monitoring' inset

Icon illustrative "the model in pictures"
3621. Quality of life goal (# 0511) with 'monitoring' inset
3622. Production goal (# 0611) with 'monitoring' inset
3623. Landscape goal (# 0711) with 'monitoring' inset

Production indicators (square images, 10x10 cm)
3631. Milk production
3632. Production of young animals (calves, lambs)
3633. Sale of livestock
3634. Distribution of supplementary feed
3635. Grain production
3636. Sale of vegetables

Landscape/environment indicators (square images, 10x10 cm)
3641. plant diversity
3642. Rainfall
3643. Water erosion
3644. Wind erosion
3645. Rodents
3646. Flies/ parasites

FOLDER # 37: MONITORING: DATA COLLECTION & ANALYSIS

Specific icon: Monitoring : collection and analysis of results (square images, 10 x 10 cm)
3711. Holistic goal icon, with "monitoring" inset (like # 3611)

Cards portraying people responsible for monitoring (10x10 cm format)
3721. Auxiliary

3722. Extension worker
3723. Village chief
3724. Head of household
3725. Management committee (n.a.)
3726. Representative of the administration
3727. Herdsman
3728. Villager
3729. Village girl
3730. Village boys

Representation of the "Holistic model in pictures"

Since the two participatory monitoring modules – "choice of indicators" and "data collection & analysis" – deal simultaneously with goals of landscape, production and quality of life, monitoring will be symbolized, on the "holistic model in pictures", by the icons for these elements of the holistic goal, with the "monitoring" inset in the lower right-hand corner.

FOLDER # 38: RE-PLANNING

Specific icon: Re-planning (square images, 10 x 10 cm)

3811. Repetition of the icon symbolizing the finalization of the grazing plan;

Plan/monitoring/oversight/re-planning cycle (1/2 A4 ladscape format)

3821. Transhumants arriving
3822. Group discussing over tea
3823. Management committee looking at the grazing plan
3824. "Conflict prevention" icon (# 0411)
3825. "Finalization of the grazing plan" icon (# 3211)
3826. "Participatory monitoring" icon (# 3611)
3827. Four arrows

ANNEX # 4

MONITORING INDICATORS

	QUALITY OF LIFE
Category	***Indicator***
Social cohesion	✓ Frequency of conflicts ✓ Decision-making by consensus ✓ Organization of visits between villages ✓ Participation of all sub-groups in the community
Women's participation	✓ Management plans take women's needs into account ✓ Women represented on Management Committee ✓ Participation of women in decision-making
Access to basic services	✓ Existence of a dispensary/ health post ✓ Pharmacy ✓ School ✓ Adult literacy center ✓ Mosque ✓ Koranic school
Housing	✓ Type of construction material used for dwellings ✓ Availability of community buildings
Water supply	✓ Proximity ✓ Quality ✓ Availability / permanence
Stability of population	✓ Displacement of families (time spent in one place) ✓ Transhumance of livestock
Personal well-being	✓ Clothing purchases ✓ Personal hygiene ✓ Consumption of tea and other "luxury" items

	PRODUCTION
Category	***Indicator***
Livestock	✓ Quantity of milk produced (estimate; trend) ✓ Marketing of milk (estimate; trend) ✓ Duration of lactation (in months) ✓ Calving (annual rate) ✓ Age at first calving ✓ Herd growth ✓ Sale (number of head) ✓ Mortality (esp. of young animals) ✓ Condition of livestock at the end of the dry season ✓ Distribution of supplemental feed during the dry season
Agriculture	✓ Crop yields ✓ Fodder harvest ✓ Cultivated area ✓ Crop diversity ✓ Yield of picking/gathering (e.g. of gum arabic) ✓ Frequency of damage caused by livestock
Handicrafts, trade	✓ Production of articles (trend) ✓ Participation in weekly markets (trend)

	LANDSCAPE
Category	***Indicator***
Vegetation	✓ MGT (module # 26): number of days; trend ✓ mRT (module # 25) no. of days; trend ✓ Relative quality of paddocks (module #30) ✓ Density of vegetation (estimate; trend) ✓ Number of species (trend) ✓ Present of perennials, plants to be promoted (module # 24) ✓ Rate of ground coverage ✓ Spread of inedible plants (yes/no); numbers ✓ Emergence of poisonous plants (yes/no); numbers;
Erosion	✓ Exposed roots (rate) ✓ Ravines (number, depth)
Water	✓ Capacity of ponds (estimate; trend) ✓ Amount of time ponds last (estimate; trend) ✓ Depth of wells: water table (estimate; trend)
Fauna	✓ Insects (presence of specific species; density) ✓ Small rodents/mammals (idem) ✓ Game animals (idem) ✓ Predators (idem)
Soils	✓ Denuded spots (rate) ✓ Crust (hardpan) (rate) ✓ Dunes (presence; area) ✓ Plant litter (rate of coverage)
Other	✓ Incidence of harmful cutting (number) ✓ Brush fires (frequency)

ANNEX # 5

BASIC VOCABULARY

In preparing a training session, it is critical that the facilitator be in agreement with the relevant communities on the local-language equivalents for the terms most commonly used in presenting the holistic model.
The following list is, of course, not restrictive. Future users of the manual are urged to fill it out on an as-needed basis, but *always* with the community involved.

English		
Annuals (plants) Brush fire Cause Conflict Cycle (of water, nutrients) Degradation Delimitation (of paddocks) Ecosystem Effect Energy flow Environment Erosion Farmer Feed Goal (of the community) Grass Grazing (time) Grouping together (of livestock) Health Holistic (e.g., management) Landscape Litter (from plants) Manure Module (training) Monitoring-evaluation Nutrients (mineral, organic) Image (i.e., picture) impact (animal) Iterativity Overgrazing Paddock (of grazing land)		

Percolation Perennials (plants) Planning; Programming Quality of life Range-land Reproduction Resting (time) Run-off (of water) Shepherd/herder Shrubs Succession (ecological) Sustainability Symbol Transhumant Watering (of livestock) Weak link/limiting factor Etc…		

ANNEX # 6

SUGGESTED IMPLEMENTATION SCENARIOS

To follow, the outreach team is invited to consider some strategies that might be envisaged in implementing the outreach cycle with the target communities.

Assuming that it takes about 40 hours to go through all 38 modules that make up the cycle, three possible scenarios are envisaged:

First approach : An intensive "crash course"
(a single community at a time; extremely intense)

Hours/day	Days/week	Hours/week	Duration (in weeks)	Total hours
6	7	42	1	42

Second approach: semi-intensive, associative
(simultaneous training of two neighboring communities)
May be more realistic,

Hours/day	Days/week	Hours/week	Duration (in weeks)	Total hours
3 1/2	4	14	3	42

Third approach: extensive, and also associative
(simultaneous training of up to three neighboring communities).
Disadvantage: it is difficult to maintain the continuity of the teaching process

Hours/day	Days/week	Hours/week	Duration (in weeks)	Total hours
3	2	6	7	42