ICIMOD

Participatory Ecosystem-Based Planning and Management

A Resource Manual for Mid-Level Technicians and Development Workers

About ICIMOD

The International Centre for Integrated Mountain Development, ICIMOD, is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. Globalisation and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. We support regional transboundary programmes through partnership with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now, and for the future.

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Note

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Acronyms and Abbreviations

ANCA   Api-Nampa Conservation Area

CFUGs   Community Forest User Groups

CRDS   Community Rural Development Society

DADO   District Agriculture Development Office

DDC   District Development Committee

DLSO   District Livestock Service Office

DPO   District Police Office

DRILP   Decentralized Rural Infrastructure and Livelihood Programme

FGD   Focus Group Discussion

HKH   Hindu Kush Himalaya

ICIMOD   International Centre for Integrated Mountain and Development

KLCDI   Kangchenjunga Landscape Conservation and Development Initiatives

KSLCDI   Kailash Sacred Landscape Conservation and Development Initiatives

NGOs   Non-Governmental Organisations

NTFP   Non Timber Forest Product

NRM   Natural Resources Management

PAF   Poverty Alleviation Fund

PAP   Poverty Alleviation Programme

PEBPM   Participatory Ecosystem Based Planning and Management

PNRM   Participatory Natural Resource Management

PRA   Participatory Rural Appraisal

RRA   Rapid Rural Appraisal

RVWRMP Rural Village Water Resources Management Project

SWS   Social Welfare Society

VDC   Village Development Committee

WDO   Women Development Office

Introduction

Management of natural resources (land, water, soil, vegetation) has multiple benefits. It not only provides ecosystem goods such as food, timber, fuelwood but also services like regulation of hydrological flows, erosion control, carbon sequestration and conservation of biodiversity. Sustainable management of natural resources in the upper catchments of the Hindu Kush Himalaya (HKH) is critical for both upstream and downstream communities.

One of the important aspects of sustainable natural resource management (NRM) is the active participation of local communities (women and men; rich and poor) and collaboration with relevant stakeholders during situation analysis, planning, implementation, and the monitoring and evaluation phases.

This manual is designed for NRM planning, as a reference material for development practitioners, researchers, and others who are involved in NRM and need to facilitate participatory NRM planning processes.

The participatory tools and methods presented in this manual have been tested and applied in Nepal, Bhutan, and India through two projects: the Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) and the Kangchenjunga Landscape Conservation and Development Initiative (KLCDI).

More specifically, the NRM planning addressed in this manual focuses on Participatory Ecosystem-Based Planning and Management, or PEBPM. The rationale for PEBPM with a village approach is twofold: (1) the complexity and specificity of hydrogeological, ecological, and socio-economic processes are best captured at the local level and (2) implementing intensive natural resource management interventions in critical locations, such as upland catchments or areas exposed to human-induced hydrogeological degradation, is more cost-effective than trying to control extended systems, such as landscapes or river basins.

Figure 1: **Participation of local communities is important for every stage of a project cycle for sustainable development**
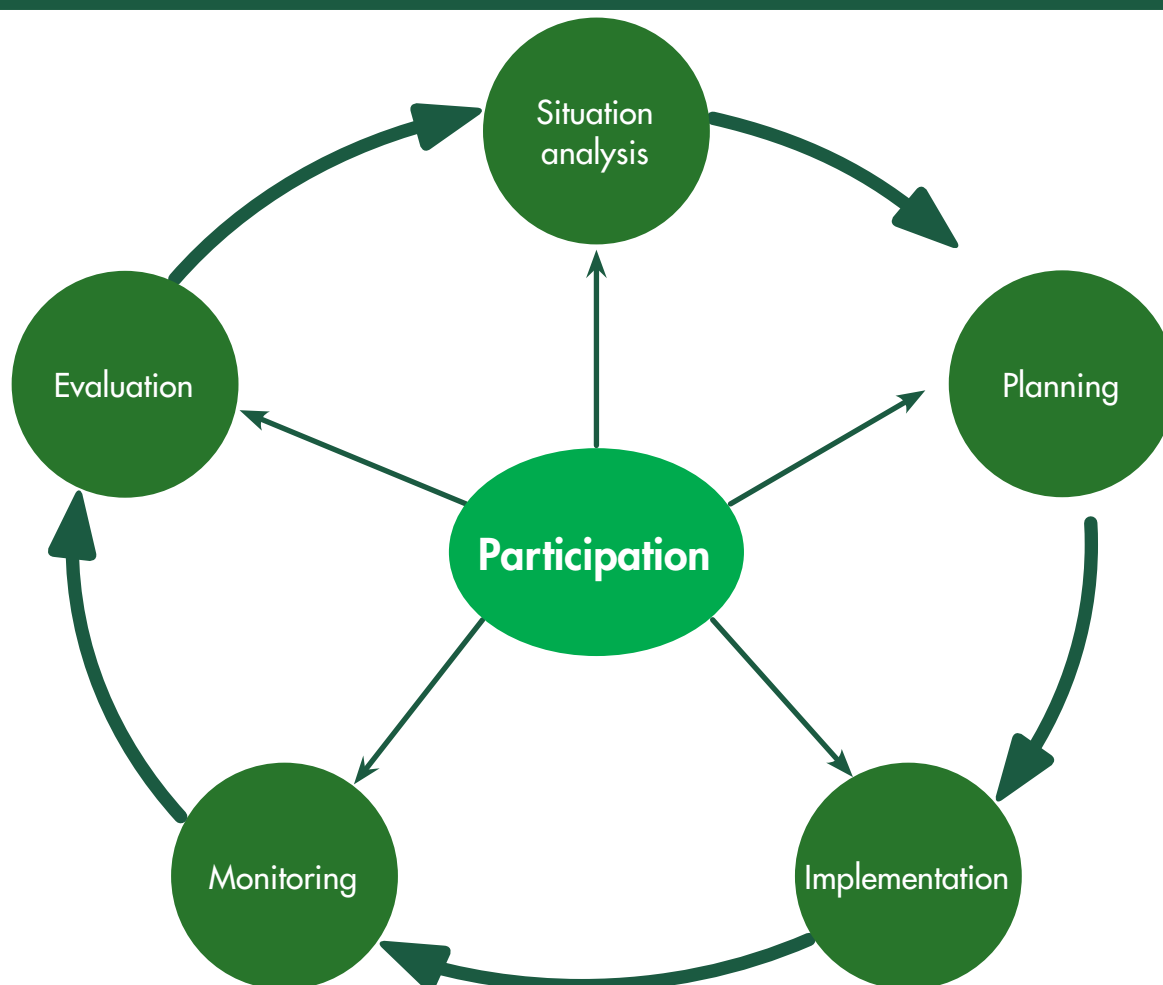
The manual can be useful in two ways:

- To organize a training course for resource persons who will facilitate PEBPM.
- To serve as a reference document for those who already have a good understanding of PEBPM and wish to organize their own trainings and sessions.

Why a Participatory Approach?

Integrated community-based participatory natural resources management has become a common strategy for improving local resources management and empowering local people recently. Effective management of natural resources such as ecosystems requires the active participation of various stakeholders in the whole process from situation analysis, to planning, implementation and monitoring. It is basically the concepts of working together also known as co-management where local knowledge and practices of the local institutions are well recognised and appreciated. Participatory approach is one of the processes led participatory methodology that is well appreciated by diverse range of stakeholder.

Participatory Rural Appraisal (PRA)

PRA is one type of participatory methodologies that is basically designed not only to see the social changes of the particular community or a group, but also to document and learn from the process through action research. For PRA we need special attention on community-based participatory methods which require special engagement with the local people from the very beginning.

PRA is intended to enable local communities to conduct their own analysis and to plan and take action (Chambers 1994). PRA involves project staff learning together with villagers about the village. The aim of PRA is to help strengthen the capacity of villagers to plan, make decisions, and take action towards improving their own situation.

PRA is considered one of the popular and effective approaches to gather information in rural areas. This approach was developed in early 1990s with considerable shift in paradigm from top-down to bottom-up approach, and from blueprint to the learning process. In fact, it is a shift from extractive survey questionnaires to experience sharing by local people. PRA is based on village experiences where communities effectively manage their natural resources. PRA is a methodology of learning rural life and their environment from the rural people. It requires researchers / field workers to act as facilitators to help local people conduct their own analysis, plan and take action accordingly. It is based on the principle that local people are creative and can do their own investigations, analysis, and planning. The basic concept of PRA is to learn from rural people. Chambers (1994) has defined PRA as an approach and method for learning about rural life and conditions from, with and by rural people. It closely involve villagers and local officials in the process.

In the landscape-level programme, we are encouraging our partners to engage community people in preparing their integrated participatory natural resources management plan. In this process, participants become the programme designers and researcher as they identify and implement solutions to the obstacles to achieving full participation in their community. This process whereby participants engage in self-reflective inquiry into their own situations, identify problems and possible solution. PRA offers multiple opportunities to develop and build upon what is learned throughout the process of implementation with the participants taking in core.

Major techniques used in PRA

- **Secondary data reviews:** books, files, reports, news, articles, maps, etc.
- **Observation:** direct and participant observation, wandering, DIY (do-it-yourself) activities.
- **Semi-structured interviews:** an informal, guided interview session, where only some of the questions are pre-determined and new questions arise during the interview, in response to answers from those interviewed.
- **Analytical game:** a quick game to find out a group's list of priorities, performances, ranking, scoring, or stratification.
- **Stories and portraits:** colorful description of the local situation, local history, and trend analysis
- **Diagrams:** maps, aerial photos, transects, seasonal calendars, Venn diagram, flow diagram, historical profiles, ethno-history, timelines, etc.
- **Workshop:** bringing local and outsiders together to discuss the information and ideas intensively.

Emerging in the 1990s, PRA builds on the earlier RRA (Rapid Rural Appraisal) but goes much further.

In the following section we put forward some of the participatory methodological processes that are very practical and effective in getting to know about community and their resources. Some of the experiences shared here are our experiences working with wide range of stakeholders including community people and implementing partners from Nepal and India under Kailash Sacred Landscape Conservation and Development Initiatives (KSLCDI) coordinated by ICIMOD. Linking livelihoods and the conservation is the key strategy of ICIMOD's landscape-level programme. In recent years, there is a growing interest in linking the livelihoods of local communities with the conservation of natural resources nearby. It is normally assumed that people will only conserve if they see the benefit available through it. Or in other terms conservation through utilization is the best and sustainable approach for its natural resources management.

Capacity building remains at the core of participatory planning and implementation of conservation and development initiative. At the local level, target communities need to become aware, informed and empowered to actively participate in planning PNRM. They should acquire and improve their confidence level to safeguard their concerns/ interest, engage in implementation and be able to claim their share of the benefit arising out of implementation.

Once the PEBPM has been approved by all concerned stakeholders for implementation, concerned user groups and village institutions will be responsible for implementing the activities in their respective areas. The role of the multi-disciplinary team in sector offices will be limited to assistance and timely provision of required technical, capacity, social, institutional, and moral support. The team will engage in activities under PRA and work with user committees for institutionalizing participatory monitoring and group learning.

Sector specific mid-level technicians and development workers should listen to local people and respect their perspectives, build trust with them, and be able to help communities through effective use of participatory tools and techniques.

Figure 2: **Community-based planning process for enhancing participatory natural resources management**
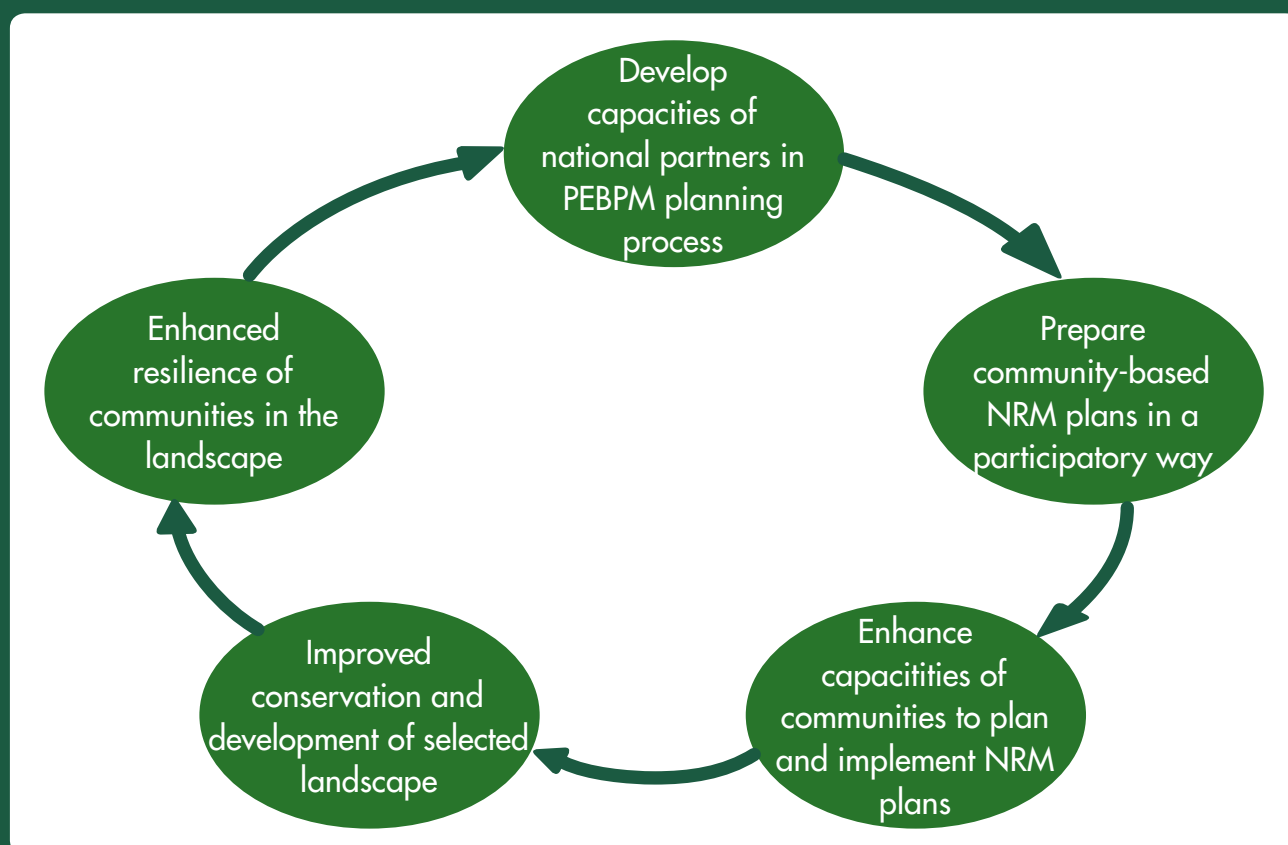
In this context, involvement of stakeholders in the whole process is very much important. And we learned that before implementing any programme, it is important to train our human resources on participatory tools and techniques for better understanding the community though it is not a new concept.

The significances of participatory methodology include the following:

- It is a high level of community participation, duration, and low cost.
- It develops sense of responsibility, transparency, accountability and building the foundation of community-based facts leading towards sustainability.
- It helps to mobilize local communities, realize roots and causes of existing issues interdependent to natural resources.
- It can play a decisive role in building self-esteem by systematizing and reassessing local experience and knowledge through encouraging excluded people to take part and lead problem solving processes, a joint action to be performed for accountable and good governance.
- It is a participatory attitude and behavior playing a vital role to make stakeholders vested in the process.

Major challenges for participatory approaches

- People's participation is higher when they are informed about the purpose of interaction in advance.
- Community people, especially women, may not always be able to afford time for interaction and discussion due to household activities.
- Local elites might interfere in the process and influence the discussions unless the facilitator handles the situation effectively.

Ensuring Facilitator's role before, during and post exercise

Facilitators should know participatory approach and its tools for generating better information and process among the participants. It is important to have mutual respect, a positive attitude, and shared leadership among facilitators and participants.

Preparation before conducting PRA exercise

- Discussing the objectives of the participatory exercise.
- Identifying the study/field site where the particular exercise is to be conducted.
- Identifying proper tools to be employed in the exercise.
- Using six helpers – who, what, where, when, why and how that meet the objectives of the study.
- Planning a meeting and discussion among the multi-disciplinary team of local community stakeholders.
- Preparing check-list of necessary stationery required for the exercise and also using locally available materials where they are applicable.
- Informing the community in advance and in consultation with local communities finalising the meeting Location and time which should be accessible to the widest group of people possible. (For this reason, it is advisable to take a night in the village in order to learn from communities in an informal setting).
- Making sure all community are informed and reach the venue on time.
- Facilitators completing preparation before the community people arrive.

During PRA exercise

- Arriving at agreed venue early and making sure the seating arrangement conducive for effective discussion with community.
- Introducing team members; asking each participant to introduce name, home and organizational association (if they have one).
- Explaining about the meeting objectives, process and timetable.
- Encouraging participants to start with what they know; identifying participants (to yourself) who are quiet and not participating; asking them their opinions directly.
- Using floor and local materials as much as possible, such as possible stone, stakes, mud, leaves, etc.

- Involving all community representation while drawing maps and making sure discussion being not dominated by only a few people.
- Using open-ended questions and reframe questions if participants do not understand the original statement.
- Making sure one facilitator keeps note and cross verifies information on A4 size paper for official use, and on a big chart to hand over to the community at the end of the stay.
- Sharing initial findings with the community to triangulate and verify information before leaving.
- Thanking all the participants for their input.
- Fixing timing and venue for the next meeting, if necessary.
- Leaving a copy of the PRA information with the community to give them a greater sense of ownership in the project.

After PRA exercise

- Sharing summary findings, learning and challenges and way they over come from difficulties and determined the uses of specific tools in their own country and community.
- Document findings with analysis as soon as possible and share among participants for further input for final report.
- Providing reports in local language to community members.
- Coordinating with other institutions that may be planning at PRA to avoid overlap and duplication of services.

Semi-structured interviews

At the heart of all good participatory research and development lies sensitive interviewing. Without it, no matter what other methods you use, the discussion will yield poor information and limited understanding if you do not have solid interviews. Interviewing skills require self-critical awareness, perceptive listening, and careful observation. These qualities take time and effort to acquire and refine.

Semi-structured interviews are guided conversations with an individual or a group in which the topic(s) are predetermined and questions and insights arise as a result of the discussion. The facilitator in a semi-structured interview should have a guiding framework – an interview guide – of themes to be explored, but should not feel constrained by a formal set of preset questions. Interview guides help facilitators focus an interview on relevant topic(s) without limiting them to a predetermined format. This freedom and flexibility enables facilitators to tailor their questions to the specific context and situation, and to the people they are interviewing.

Semi-structured interviews can be used during any phases of the project cycle. They allow project beneficiaries, implementing staff, community members, and/or relevant stakeholders to share their expectations and/or experiences with the project in a less formal manner than a survey or formal interview.

As semi-structured interviews have an open format, they can be used both to give and receive information.

Tips

- Do not take too many hand-written notes. Participants may feel intimidated if you write down every word they say.
- Make the interview more of a casual conversation, writing down only key phrases to trigger your memory later of the issue discussed.
- Do not ask leading questions.
- Do not ask vague questions.
- Do not make implicit assumptions.
- Conduct practice interviews to become familiar with the interview guide.
- Keep the interview focused. If a response is beginning to go off topic, gently steer the conversation back on track.
- Record in detail what is observed and how the interview develops.
- Record personal impressions of the interview.
- Build rapport with the participant(s).

Participatory Tools and Techniques for Field Exercise

There are many PRA tools and techniques to assess ecosystem services. This section will provide brief introductions and information about some of the tools which will be helpful for the team member for their field exercises.

For field application of participatory tools, a field practitioner must have a sound knowledge on the usefulness of the tool and how it can be adapted to generate common understanding with local communities to analyze their issues and formulate appropriate interventions and suitable measures to address situations.

While planning with the community various information is generated and therefore prudent selection of participatory tools leads to successful community engagement. There are few issues to keep in mind when selecting a participatory tool

- When a team needs to generate understanding of how different community assets and features are located over a space – a mapping tool provides relevant and precise information. The spatial relationship of the features of the ecosystem assets is best exhibited by a map and hence mapping is participatory tool that needs to be used by PRA practitioners. Maps can be of various types, ranging from natural resource maps to poverty maps, wealth maps, future dream maps, and so on. These should be chosen per the needs of the investigating PRA team.
- During a participatory ecosystem based planning and management exercise there may arise a situation where one needs to prioritize the needs and preferences of the communities. In order to enable to the community participants to make the right choice and prioritize their preference, a ranking exercise will help communities to arrive at an agreeable decision. Prioritization by ranking exercise can also be modulated to fit into different contexts and innovations are welcome.
- While trying to study and analyze the institutional relationships within a community, tools like a Venn Diagram generate a lot of rich discussion and helps to highlight the perception of the community participants of the various organizations which exist and operate in their village. In this process the roles of the different organizations within the community are captured and understood more clearly.
- The various trends that may occur within the community over a period of time are best captured by tools like the seasonal calendar, trend lines, transect walks, time lines, force field analysis, and present and future maps.

Please note that these participatory tools are a means and not the end. The process of the PRA exercise has to be in order to enable greater participation and sharing among community representatives. Now we examine some of those tools in detail.

Community Resource Map

Introduction
The community resource map is a tool that helps an outsider to learn about a community and its resource information. It can provide an overview of an area, show the local context as perceived by the community people, and provide good starting point for discussions with local people about their problems, potentials and needs. This map supports further analysis of the resources available in the area and explore the possibility of integration of new intervention in the future plan and programme.

Objective
- To develop an overview of an area as perceived by the local people and explore the problems, needs, and opportunities for the area.

Material
- Small objects such as rocks, corn kernels, dry beans, sticks, twigs, leaves, etc.
- Large paper, pencils, colored pens, colored paper, glue, scissors

Time: approximately 1.5 hours

Figure 3: **Community representative preparing the local resource map in Haa, Bhutan**
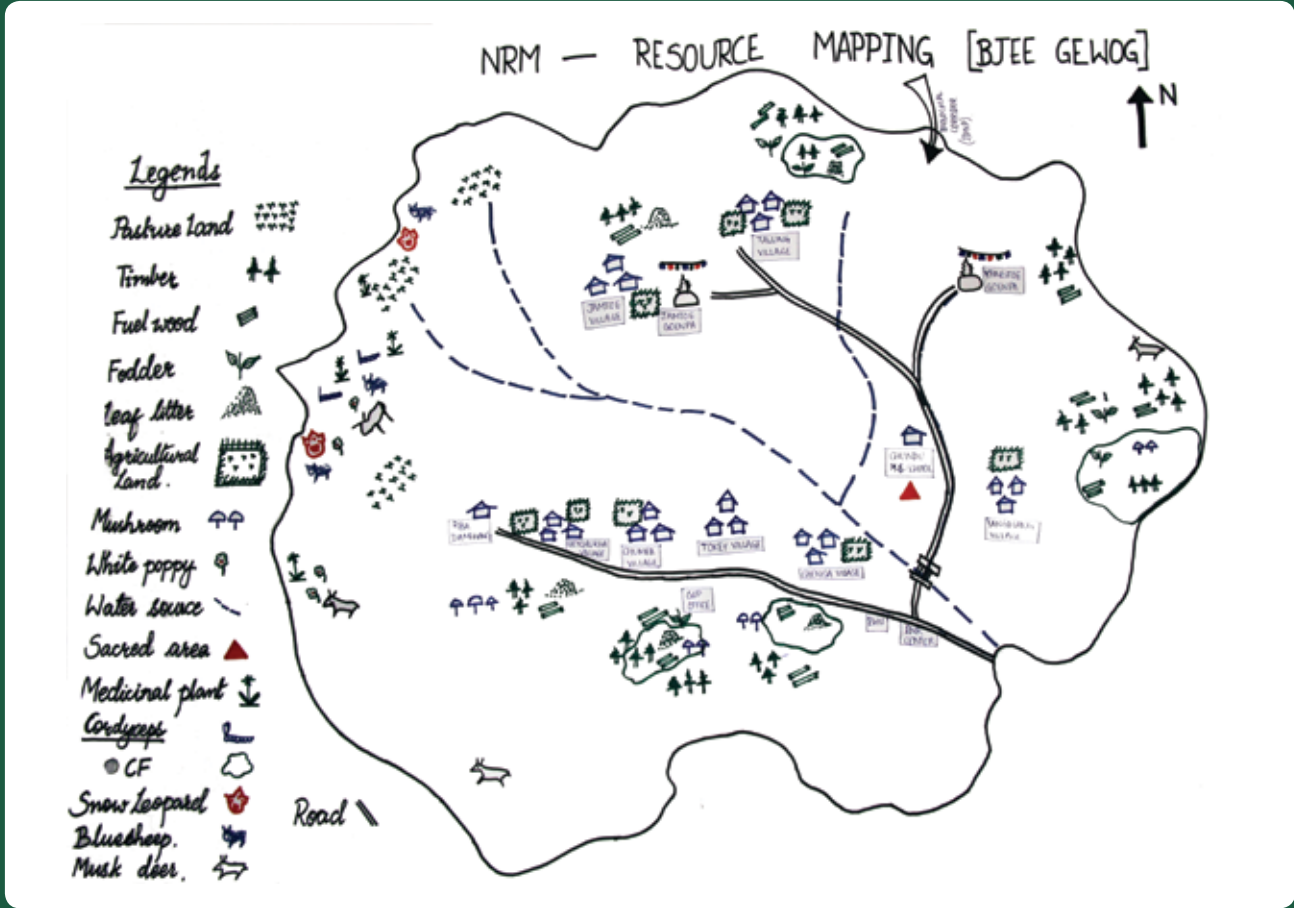
Approaches and steps

- Briefly explain the purpose(s) of making a map, and discuss Legend use in the Map that will prepare the community people for the activity.
- Discuss the area and scale of the maps to be made, and what to show on the maps. Different groups may want to map at different scales, some focusing on the immediate community and others on a wider area. They can also produce maps of the same scale, showing the different perspectives of participants.
- Maps should be made on the ground using stones, sticks, seeds, leaves, etc. Collect these in advance.
- Choose an open site (but out of the wind) that will attract other community members.
- Start the map with a line on the ground showing the main road or trail through the community or any major landmark. As details are filled in, don't worry about scale: this is a schematic map only.
- Facilitators should invite others' comments in mapmaking exercise. If a site on the ground is not available, make the map on a surface that can be easily changed, such as a chalk board.
- Paper and pencils are not the best choice as only one person usually controls the pencil. The idea is to engage the entire group in placing the stones and seeds on the ground where they go.
- While creating a resource map analyze, evaluate and triangulate information on the map and cross check for factual information.
- In the process, participants and community members will discuss the relationship of various sites, the history, and stories, which are also enlightening and provide good material for community natural resource planning. Communicate mapping information to participants on the spot and share to concern stakeholders and link outcomes to broader planning activities.
- During the mapping exercise a Recorder should note all of the discussion as much information comes out during this participatory exercise.
- Focus on preparation and completion of the map on the ground before copying it onto a paper. This allows participants to continue to discuss and revise the map until the end.
- When the participants feel the map is complete, ask one of them to copy it onto a large paper, using colored pens, for sharing with others.
- Thank the community members for their participation and be sure to label the map, note the names of all informants who have contributed, the date, a north arrow, and a legend.

Comments

- Be sure to capture other assets or resources that are not easily mapped, such as good views, clean air, friendly people, good access, good climate, peacefulness, and/or a multi-ethnic population with pictures or symbols; you might need to also prepare a list of these for clarity. The Recorder should note all of the discussion.
- Focus on preparation and completion of the map on the ground before copying it onto a paper. This allows participants to continue to discuss and revise the map until the end.
- Be sure to label the map, note the names of all informants, the date, the north arrow, and a legend.

Focus Group Discussion (FGD)

Introduction

Focus group discussions (FGD) should be focus on specific issues with specific target people to learn more about opinions on a specific topic. FGD should be conducted in small groups of 7 to 12 people based on their profession, education, age group, and sex or based on well-being ranking or social status. It is important to brief FGD participants about the objectives and the subject of the discussion. The FGD is very effective tool to acquire in-depth knowledge on specific issues.

Objective

- To gather in-depth information from small and specific groups of people on a topic of particular interests.

Material

- Comfortable seating arrangement for participants
- Pens and paper for taking notes
- White board or chart paper to record any discussion notes or to clarify issues

Steps

- FGD participants should be informed in advance regarding FGD subject, time, and venue.
- Facilitator should prepare a checklist in advance which will help the team have a smooth discussion.
- Thank and greet the people for coming for FGD and introduce your team members and get quick introduction of participants.
- Explain about purpose of the FGD, brief methodology and time required.
- Create a relaxed environment through a brain storming game, story, and encourage members to respect each other's view.
- Ask the group to suggest some ground rules and make the following points.
  - Everyone should participate.
  - Stay focused on the group conversation and do not have side conversations
  - Feel free to move around
  - Turn off cell phones if possible
- When all your checklist questions have been asked, ask if anyone has any other comments to make.
- Summarize your general understanding to the participants to make sure you have understood correctly
- Thank the participants for their time.

Comments

A focus group is not:

- A debate
- Group therapy
- A conflict resolution session
- A problem solving session
- An opportunity to collaborate
- A promotional opportunity
- An educational session

Note

There are three types of focus group questions:

- **Engagement questions:** to introduce participants to and make them comfortable with the topic of discussion
- **Exploration questions:** to arrive at the heart of the discussion
- **Exit questions:** to see if anything was missed in the discussion

AN EXAMPLE

Questions for a Focus Group on Dental Flossing

Engagement questions

- What is your favorite toothpaste?
- What do you notice when you look at other people's teeth?

Exploration Questions

- Who in particular has influenced your dental habits?
- What are the pros and cons of flossing your teeth?
- When you floss, how do follow through? When you don't, why not?
- How do you feel when told about possible damage caused by not flossing?
- How do you feel about yourself when you floss regularly? When you don't?

Exit question

- Is there anything else you would like to say about why you do or do not floss your teeth on a regular basis?

Note: Flossers and non-flossers should be in separate groups.

Stakeholder Analysis

Introduction

Different stakeholders have different interests and viewpoints. Stakeholders are anyone who has an impact and/or are potentially impacted by the interventions. A stakeholder analysis is therefore required to assess the interests and importance of each key stakeholder and to find out ways how these stakeholders can be engaged in achieving the target objectives. To do this we use the four quadrant analysis which will identify the stakeholder positions and weigh their potential influence and assess the strength of their commitment.

Objective

The objective of this session is to identify the key stakeholders in the village and assess the interests and importance of each key stakeholder and find out ways how these stakeholders can be engaged in implementation of PNRM plans.

- Materials
  Comfortable seating arrangement for participants
- Pens and paper for taking notes
- White board or chart paper to record any discussion notes or clarify issues

Time: Approximately 1 to 1.5 hours

Steps

- Identify and brainstorm the list of stakeholders and their working area
- Discuss with the community their roles and responsibilities
- Based on their role, plot the participants in the four quadrant box

Mobility Map

Introduction

Mobility maps track movement information of female, male and community for a specific purpose in a particular area. These maps can be related to a specific type of movement: Where does the community go for Non Timber Forest Products (NTFP), timber collection, fodder collection, and firewood collection? Segregated information can also be looked at according to sex, ethnicity, and economic categories For example where do men, women, and youth of a particular village go for economic activities? How do they access health and education? Mobility maps

Figure 4: **Stakeholder analysis by using four quadrant**

Importance	Stakeholders who stand to lose or gain significantly and their actions can affect the objective **D** **Consultation**	Stakeholders who stand to lose or gain significantly **A** **Dialogue**
	Stakeholders who do not stand to lose or gain much from the project **C** **Information gathering**	Stakeholders do not lose or gain but can contribute significantly **B** **Information provider**

Influence

show how the family and community perceive positive and negative impacts from the particular movement. Are women restricted in the movement? Do certain groups have to travel long distances to acquire basic resources? These are just a couple questions that might be answered.

Objective
- To identify community movement, access, and control of services in a particular community for further program planning.

Materials
Small objects such as rocks, corn kernels, dry beans, sticks, twigs, leaves, etc.

- Large paper, pencils, colored pens, colored paper, glue, scissors
- Pens and paper for taking notes

Time: Approximately 1.5 hours

Steps
- Introduce the session to the participants stating that the movements of local people will be traced to understand how and why people travel in or out of their villages and for what reasons.
- Identify and select the ecosystem services utilized, and list them ahead of the mobility mapping exercise.
- On the chart paper or on the ground, draw a circle representing the village community. This helps focus the exercise and serves as a starting point.
- Identify who goes where and for what. Start with one issue, for example: Where do you have to go to get your fuel wood? How far away are these places, who goes, how often, how many times in a day, what is preferred species of fuel wood for daily use?

Figure 5: **Local people movements for various activities from their village (Rauta, Udaypur, Nepal)**

- Ask open questions one by one and insure equal participation by soliciting input from quiet participants. Divide groups of male and female if you find that there are too many participants.
- On the mobility chart, use separate lines to mark each typical journey. Mark relative distances from the village along the lines.
- Address one topic at a time until it has been covered adequately.
- Discuss the opportunities and constraints the people face around their area after completing the map.
- Thank everyone for their input and leave a copy of the map in a big chart for community and in A4 size paper for your own record.

Questions to ask:

- Where have they been going and why?
- How long have they been going there?
- What are the special features of the sites they go to?
- How have the patterns of movement changed and why?

Comments

- To generate discussion about the various activities related to NRM, have a balanced participation of men and women is helpful.
- By tracing the movements of local people, participants reflect and analyze their economic status since some may travel to distant places for education and medical treatment depending upon cost.
- The intensity movement to areas around a village can give an idea of pressures and threats to natural resource extraction. The time taken for different activities should also be recorded as it tells participants how much time they give to a particular activity and why it is important to them.
- The information can be useful in planning since it helps field workers to meet people in time to implement development activities.

Institutional Mapping

Introduction

Institutional maps help to identify the various organisations and their roles and responsibilities as well as their relationship to a wide range of stakeholders in resource management. It further provides information planning, especially with identifying how to involve the different organizations in the partnership process of the programme.

Objectives

- To identify existing community organizations and institutions and their roles and relationship with other organizations.
- To identify community institutions linkages and constraints to environment and ecosystem services.

Materials

- Small objects such as rocks, corn kernels, dry beans, sticks, twigs, leaves, etc.
- Large paper, pencils, colored pens, colored paper, glue, scissors
- Pens and paper for taking notes

Time: Approximately 1.5 hours

Steps

In Figure 6, the people and institutions of Khar VDC are represented visually so as to reveal their linkages between local and district levels, and their associations with state and non-state actors. In this graphic, we see the presence of sectoral line agencies in Khar is sporadic. At the community level, Khar residents belong to a variety of community-based natural resource management institutions, such as community forest user groups (CFUGs), water user committees, allo enterprises, and micro-hydro committees.

Figure 6:   **Types of institutions and linkages in Khar VDC of Nepal**
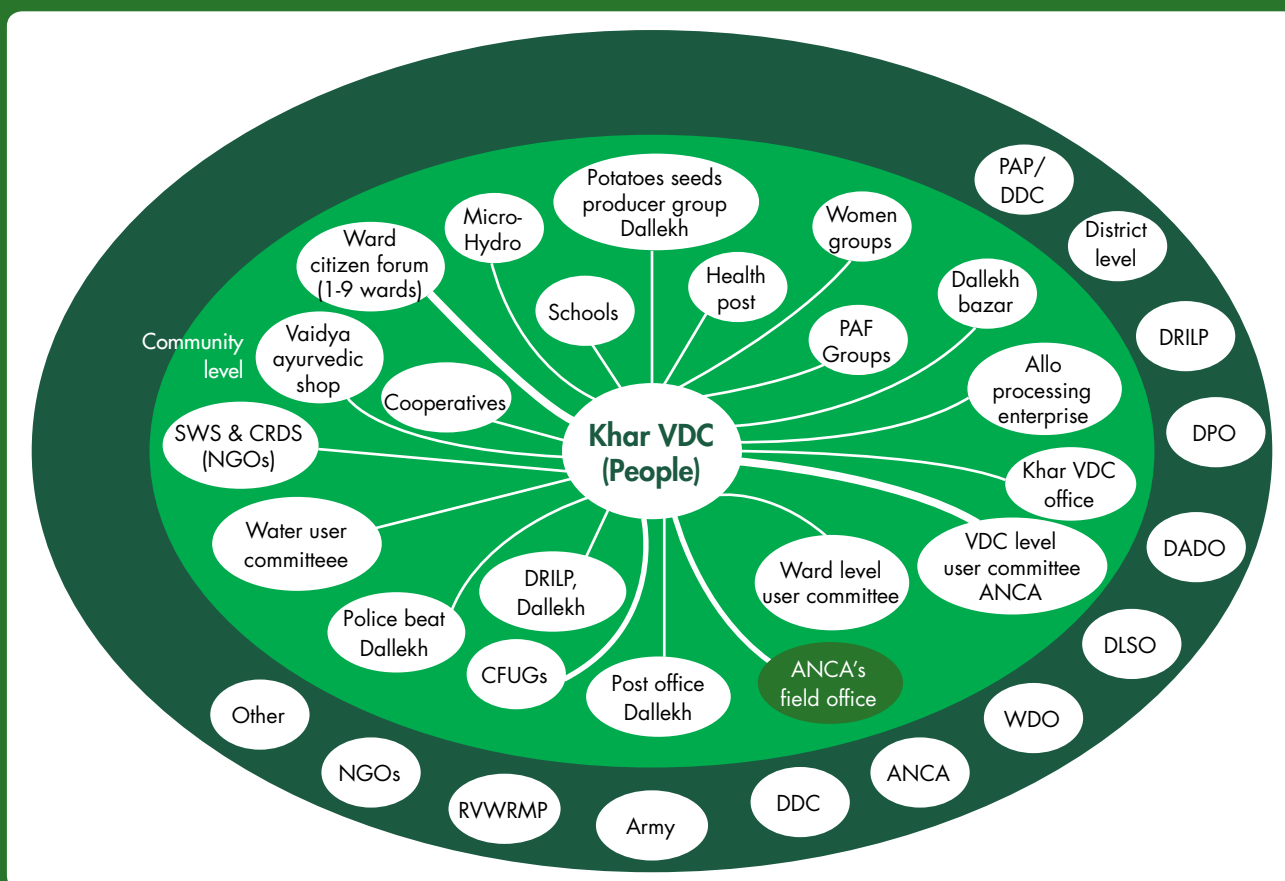
- Prepare materials and role divisions among team members. Arrive early at selected location.
- Follow basic guidelines of PRA for ensuring full participation by all stakeholders.
- Explain the purpose of institutional diagram and reach agreement from participants to provide honest assessment of local institutions based on their knowledge and experience.
- Ask participants to identify key institutions and individuals who play a role in the community for natural resource management activities.
- Mark each organization in a different color according to the category in which they fall.
- Ask the participants to draw circles of different sizes on chart paper to represent the institutions and individuals in the community. The size of the circle can show the size of the organization or the relative importance of their role in community natural resource management and conservation activities.
- Ask participants to label the circles. Provide different sizes of round paper and ask the exercise participants to provide big circles to those that are working on environment and eco-system service related field activities. Make sure the facilitator asks each institution's role in ecosystem service promotion and development.
- Ask the participants to arrange the circles on the paper to represent working relationships between and among the various institutions that have been identified. During the placement of the circles and the subsequent ensuing discussion find out the communication status (one way or both way) between the institutions and mark to indicate strong relations and good communications with each organization.
- Identify the resources and processes of each institution.
- Summarize your findings and share with participants.

Comments

- Institutional mapping can be an illuminating exercise to learn aspects of various institutions and the roles they play in the community.

- It may help to highlight the different perceptions of different groups, the degree of relationship and importance, and areas of dispute regarding each institution.
- In the process, encourage participants to discuss ways to resolve conflicts between organizations, and fill in institutional gaps that exist in environmental and ecosystem services.
- Make an effort to include individuals who play an important role in community institutions.
- Compare the institutional map as it is with the participants ideal of how it should be.. This will generate good discussion about possibilities for change.

Pairwise Ranking

Introduction

Pairwise ranking helps to analyse most important problems, challenges, and opportunities through comparison. Facilitators should encourage community to compare activities to each other and arrive at consensus as each individual may have their own priority. This method is also good for identifying which prioritized activities need outside resources and which can be managed from local sources.

Objective

- To prioritize the most important and urgent activities, opportunities, and challenges in a community for future planning and actions.

- Materials
  Small objects such as rocks, corn kernels, dry beans, sticks, twigs, leaves, etc.
- Chart paper, pencils, colored pens, colored paper, glue, scissors
- Note pads for taking notes

Time: Approximately 1 hour

Steps

- Divide participants into groups (if needed) and then assign roles of interviewer, recorder and observer among the team members.
- Each team works with local participants to identify and list the different items that are to be discussed and ranked. For example, they might rank types of vegetation: timber trees, fodder types, fruits, etc. If possible, it is better to
- Ask participants then to choose a maximum of up to 10 items for ranking depending upon the investigation. If too many items are chosen then the exercise becomes too lengthy.
- Explain the recording matrix to the participants where the different items are to be ranked and listed on both axes. Avoid explaining the entire exercise at the start since this often confuses participants – take it step by step.
- Begin the exercise by asking the participants pair by pair to nominate their preference between the first two items being ranked. The participants should be asked why s/he has made the choice. The probing of the choice continues until no further questions arise and should be carried as a group discussion with a consensus on the final choice. The question that forces participants to make the choices is important. Once the choice is made, it can be recorded in the matrix.
- Repeat until all possible combinations have been compared, i.e. all boxes of the matrix have been filled. The recorder should record all the reasons that the participants gave about why the choices were made.
- After the completion of ranking, share the findings to the community people and thank them for their contribution and time

Comments

- The real value of the exercise does not lie in the absolute ranking but rather in the opportunity that arises for a discussion of choices.
- Such an exercise provides a useful insight into the nature of local preferences.
- The tool has been found to be particularly useful in monitoring and evaluation

	VEGETABLES	CARDAMOM	GINGER	ORANGE	MAIZE	TOMATO	NAKIMA	AMLISO	Total	RANK
VEGETABLES	—	CARDAMOM	GINGER	ORANGE	MAIZE	TOMATO	VEGETABLES	AMLISO	1	7th
CARDAMOM	CARDAMOM	—	CARDAMOM	CARDAMOM	CARDAMOM	CARDAMOM	CARDAMOM	CARDAMOM	7	1st
GINGER	GINGER	CARDAMOM	—	GINGER	GINGER	GINGER	GINGER	GINGER	6	2nd
ORANGE	ORANGE	CARDAMOM	GINGER	—	ORANGE	ORANGE	ORANGE	ORANGE	5	3rd
MAIZE	MAIZE	CARDAMOM	GINGER	ORANGE	—	MAIZE	MAIZE	AMLISO	3	5th
TOMATO	TOMATO	CARDAMOM	GINGER	ORANGE	MAIZE	—	TOMATO	AMLISO	2	6th
NAKIMA	VEGETABLE	CARDAMOM	GINGER	ORANGE	MAIZE	TOMATO	—	AMLISO	–	
AMLISO	AMLISO	CARDAMOM	GINGER	ORANGE	AMLISO	AMLISO	AMLISO	—	4	4th

Matrix Ranking

Introduction

Matrix Ranking is a participatory technique that allows analysing and identifying problems stakeholder share in order to implement adequate improvements and solutions in their community and area. First, the stakeholders have to decide which are the most important problems faced in their community. Afterwards, the participants have to rank these problems in regards to their importance. The result of this method provides the starting base for discussions on possible solutions to the priority problems

Objective
- To produce a scored and/or ranked list of criteria or qualities about some topic of interest.
- To show participants how they can discover different perceptions about advantages and disadvantages of a particular issue amongst different social groups in a community.

Materials
- Papers, pens, chart papers, and any local material like seeds, stones etc.

Time: 1 hour

Approaches and Steps
- Divide the participants into groups of three or four. In each group ask participants to assign responsibilities of one or two interviewers, one recorder and an observer.

- In the meeting community participants, the team identifies four or five key issues or topics for the ranking exercise depending upon the theme of the investigation.
- Having identified the issues, gather various criteria for their assessment. For each issue questions such as "what is good about it?" can be asked. Even negative criteria such as expensive can be turned into a positive – cheap. Continue asking questions until there are no replies and there are several criteria (between 10-20 is enough).
- Groups prepare the matrix table that lists the issues across the top against the various criteria down the side. Participants work together to rank each issue or topic against each criterion. Questions in the following sequence help to facilitate the session
  – "Which is best ?"
  – "Which is next best ?"
  – "Which is worst ?"
  – "Which is next worst ?"
  – "Of the two remaining, which is better?"
- While conducting the matrix scoring, explain that they can choose how many counters (stones, seeds, bottle caps etc) to place in each square representing the relative value of the object ranked against each criterion. For example placing four seeds in the square for the durability value of oak, and only three for alder, the participants is indicating that oak is highly durable compared to other timber.
- Record the results directly on to the matrix, and review the final results with questions such as "What are the top four and why?"

Comments

- As the matrix scoring is in progress, discussion can be promoted if participants are asked which criterion is considered important by people and why?
- If possible it is best to limit the number of topics to be ranked to less than ten, otherwise the exercise can become too lengthy.
- Ranking can produce inaccurate results if the participants are not clear about the criteria.
- Avoid asking questions that are beyond the knowledge or experience of the informants.
- Village women are busy with household tasks and are often shy, this may affect their ability to participate, and a separate session might prove fruitful.
- Be careful about the interpretation and use of the analyses – the total score hides the fact that not all criteria carry equal weight and value.

Tips

- Select times of the day when ranking is likely to cause less disruption to local activities of the people
- Locate key informants and knowledgeable persons who are willing to participate and provide a wide cross section of information and opinions.
- Check reliability of information collected through direct observation and cross -checking.

Seasonal Calendar

Introduction

This tool will provide the year round activities which will provide good information for project design, research and planning. A calendar allows people to visualize patterns of variations of activities across the seasons and provides general and specific knowledge and awareness to all. Seasonal Calendar can develop separately based on need and its' use. Such as agriculture calendar, NTFP collection calendar, climate change calendar, festival calendar, heath calendar, income generation concern calendar etc.

Objective

- To identify and understand the seasonal activity, variation that affect their lives.
- Identifying periods of opportunity, stress and vulnerability.

Material

- Locally available materials (Stones, seeds chalks, pen, paper etc.)
- Use a large sheet of paper (flip chart paper) or make sketches on the ground depending upon where the exercise is being conducted.

Time: Approximately 45 minutes to 1 hour

Approaches and Steps

- Introduce to the participants the seasonal calendar format and the objective of the exercise and follow same basic criteria of PRA
- Brainstorm and discuss and identify a list of concerned seasonal activities that the community are involved and ask them to prioritize then.
- Encourage community to start from their own comfortable activity, for example they can start from local fire wood collection time, or rainy seasons etc.
- In making the blank calendar make sure that calendars are culturally appropriate, for example, use local lunar months if most people use these, use symbols instead of letters to be more inclusive.
- Work with a group of participants some of whom have specialist knowledge about particular topics that will be useful to understanding issues related with ecosystem, services
- Use picture and locally available materials like stones, sticks, chalk, and mud apart from colorful paper in big chart to visualize and show general trend. But avoid using food item on floor.
- Then the participants are asked to make diagrams to illustrate trends and changes in those activities or features over a period of a week, a year (whatever applicable).
- Hand over the pens, materials to the participants to fill in the months, with the team members working as facilitators and asking questions to the individual and group about the decisions made.
- Discuss and address issue through participatory discussion if issue arises during the development of calendar.
- Discuss on change pattern, challenges and solution on ecosystem services and make sure process, outcome of discussion and contents are recorded.
- Analyze the information and share with community and also make corrections, if necessary.
- If the exercise was done on the ground, be sure to make a copy on paper. Thank the community participants for their time and contribution.

Comments

- Ask the participants to divide the year according to what suits them best - western calendars may differ.
- Use whatever material is available locally to show the trends-colored chalk can be used to draw line graphs; different sized piles of seeds, stones, beans can be used to show seasonal variations.
- Combine all seasonal patterns into one diagram to show correlation between variables and identify periods of particular opportunity or stress.

Figure 8: Matrix ranking for traditional food prepared in village of Sikkim

Criteria	Dhero*	Gundruk#	Kodo Roti**	Kinema✱	Chhang◆
Available locally	o o / o o	o / o o	o / o o	o o / o o	o / o o
Nutritious	o o / o o o	o	o / o o	o o	o
Quickness of preparation	o o	o	o o / o o	o / o o	o o
Which dish tourist like most ?	o o	o	o o / o o o	o / o o	o o / o o
Appearance	o	o o	o o / o o o	o / o o	o o / o o
Flavour	o o	o / o o	o o / o o	o	o o

*Dhero = Finger millet or Buckwheat or Cornmeal porridge
#Gundruk = Fermented dry leafy vegetables
**Kodo roti = Finger millet bread
✱Kinema = Fermented soya bean food
◆Chhang = Fermented alcoholic beverages produced from either finger millet, rice or wheat

Historical Time Line

Introduction

This tool provide the most important events of past and prepare with the information a historical timeline which serves as the base for further work. It is important to involve specially the age-old people of the communities to get

Figure 9: **Seasonal calendar of Natural Resource Use in Haa Bhutan**
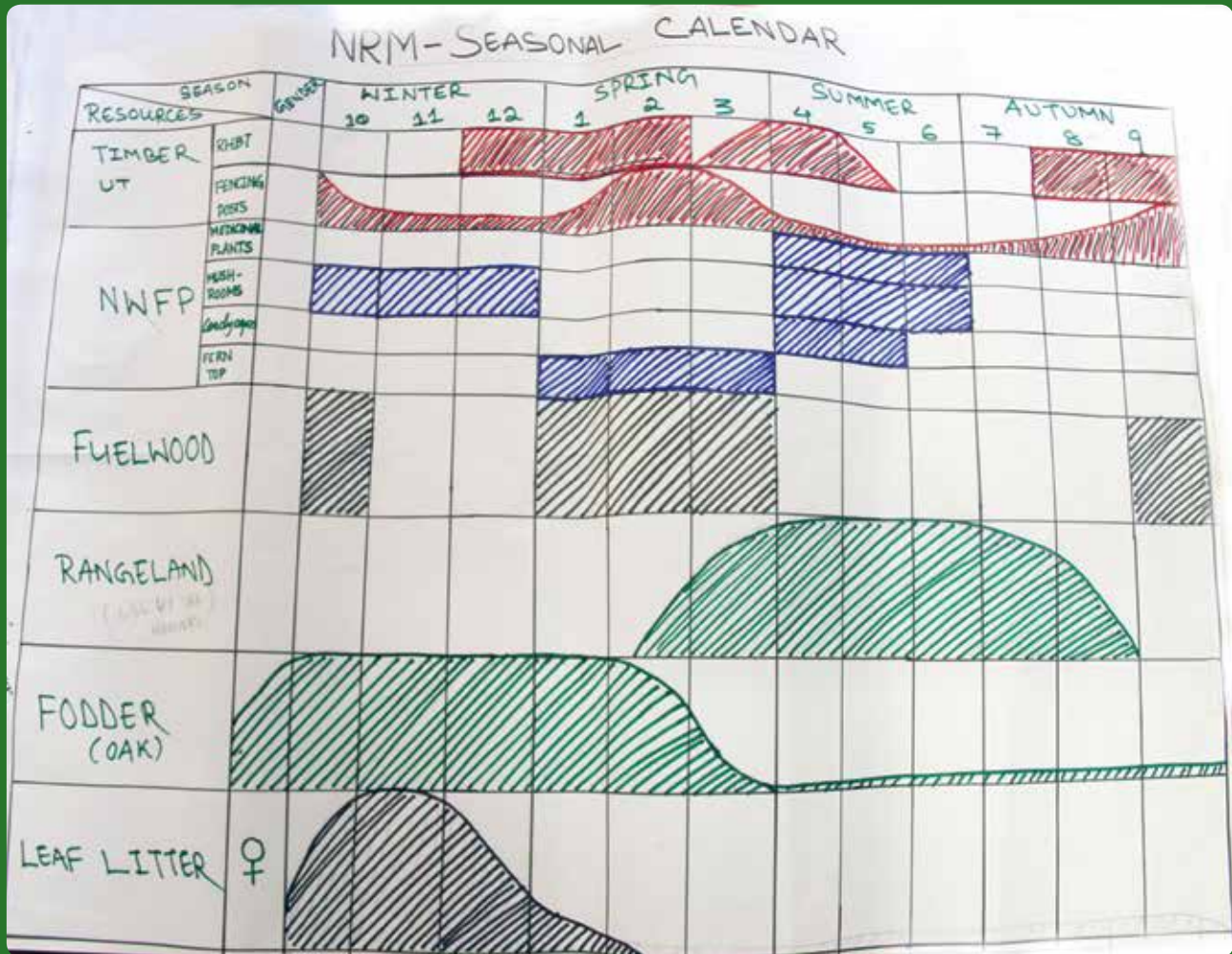
their different perspectives. Apart from the historical back ground, this tool and techniques help to understand the change pattern on environment, economic, social, political and cultural and create an environment for pre-planning for future action at community.

The past historical local events which community faced, perceived and practiced local solution can be carrying out for future mitigation of problem. You can discuss on the eventual impact of these events on forest management system and ecosystem services. The timeline can be also used to see social and technological innovations or on communities along with history of cooperation and joint activities.

Objective
- To identify the important past events happened in the communities and see the trends of changes over the time.

Material
- Pens and paper for taking notes
- Recorder if possible

Time: Approximately 45 minutes to 1 hour

Approaches and Steps
- Find out most senior citizen and the experienced people of the community. Better to spend night in community and discuss in the evening when they are relax.

- Introduce yourself and start asking from the event that particular older citizen remember (Past events).
- Ask the participants how many years back they can visually recall the incidents.
- Write down all incidents date wise serially and review once you finish and make sure for real information.
- Analyse and find out present status based on past event and learning for further planning activities
- Appreciate their time and share later with groups for their own understanding and additional information.

Comments

- Historical time lines represent qualitative measurement of the incidents and its trend over the time
- Such an exercise provides a useful insight into the nature of local preferences.
- The tool has been found to be particularly useful in monitoring and evaluation

Figure 10: **Historical time line: An example from KL-India**

Year	Events
Early 18th century	Establishment of Tea estate
1951	Human settlement started
Late 70s	Heavy landslide and erosion
1970s	Cement factory established in Gomtu and Beginning of Human elephant conflicts
1976	Evacuation of settlement and beginning of teak plantation
1977	Village fire at Sukti line
Early 80s	Observed Dolomite siltation
1984-85	Distribution of land patta
1986	Village highly damaged by elephants
1993	Heavy flood and erosion on Sukti river
1995	Forest protection committee (FPC)
2009	Makrapara tea garden closed
2010-11	Beginning of permit system to Indian workers by Bhutan Government
2012-13	Heavy declined of paddy, Maize, millets cultivation

Source: Badola et al. 2016

Transect Walk

Introduction

This is the simple method of collecting information about major land-uses of the area. The researcher and key informants conduct a walking tour through areas of interest to observe, to listen, to identify different zones or conditions, and to ask questions to identify problems and possible solutions. With this method, the outsider can quickly learn about topography, soils, land use, forests, watersheds, and community assets. A transect walk is a useful tool for tapping local people's knowledge about land use, natural resources, soil types, problems, and possible solutions.

Objective

To provide a picture of how natural resources are managed and used by a community, and to help identify the problems and opportunities inherent to each zone.

Materials

- Small note books, pens, chart papers or white board

Time – Depending upon the area: however it will take 1-3 hours or up to a whole day

Approaches and Steps

- Identify the key informants (within the village) who are knowledgeable and willing to participate in the process.
- Inform them about objectives and the purpose of their visit and along with specific information that you would like to gather (major land uses, crops, trees, soil, water, problems, opportunities, etc.).
- Identify the main route to be taken for the transect walk with community people. Resource map can be used for this purpose. The route should cover all major ecological and production zones.
- If possible it will be good to start from one end. Walk with the key informants in the transect route.
- Let the key informants give information relating to the categories selected. Ask questions on additional factors that might come up during the walk.
- After the visit, transfer field data to a clean sheet and add illustrations.
- Validate data with key informants.

Comments

- During the debriefing session focus your discussion mainly on what are the key findings and what was the new that you found while walking
- How did you feel while walking through the various land uses and talking to the key informants
- How did you find the methodological process that you followed and what methods you find most interesting
- Such an exercise provides a useful insight into the various land uses and local resources available in the area.
- The tool has been found to be particularly useful in planning and designing of new interventions

Applications of transects

- Changes in vegetation and forests over altitude
- Changes in human habitation over altitude
- Changes in vegetation and human habitation over space
- Changes in variables over time, by sampling the same transects in different time periods

Force Field Analysis

Introduction

Force Field Analysis is a useful technique for looking at all the forces for and against a decision. In effect, it is a specialized method of weighing pros and cons. By carrying out the analysis, you can plan to strengthen the forces supporting a decision, and reduce the impact of opposition to it. As a tool for managing change, Force Field Analysis helps identify those factors that must be addressed and monitored if change is to be successful.

Objective
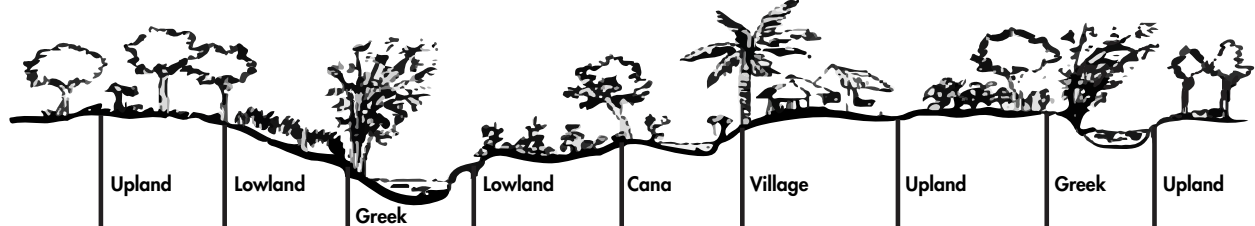
- To develop a shared vision of a "future situation" for strengthened capacities of communities for ecosystem management.
- To develop strategies for achieving the future situation, focusing on strengthening local resources, overcoming constraints, and enhancing community commitment and participation in achieving it.

Materials

- Sample drawing of Force Field diagram (see next page), flipchart paper, colored pens, ruler

Time: Approximately 2 hours

Figure 11: **Transect walk**

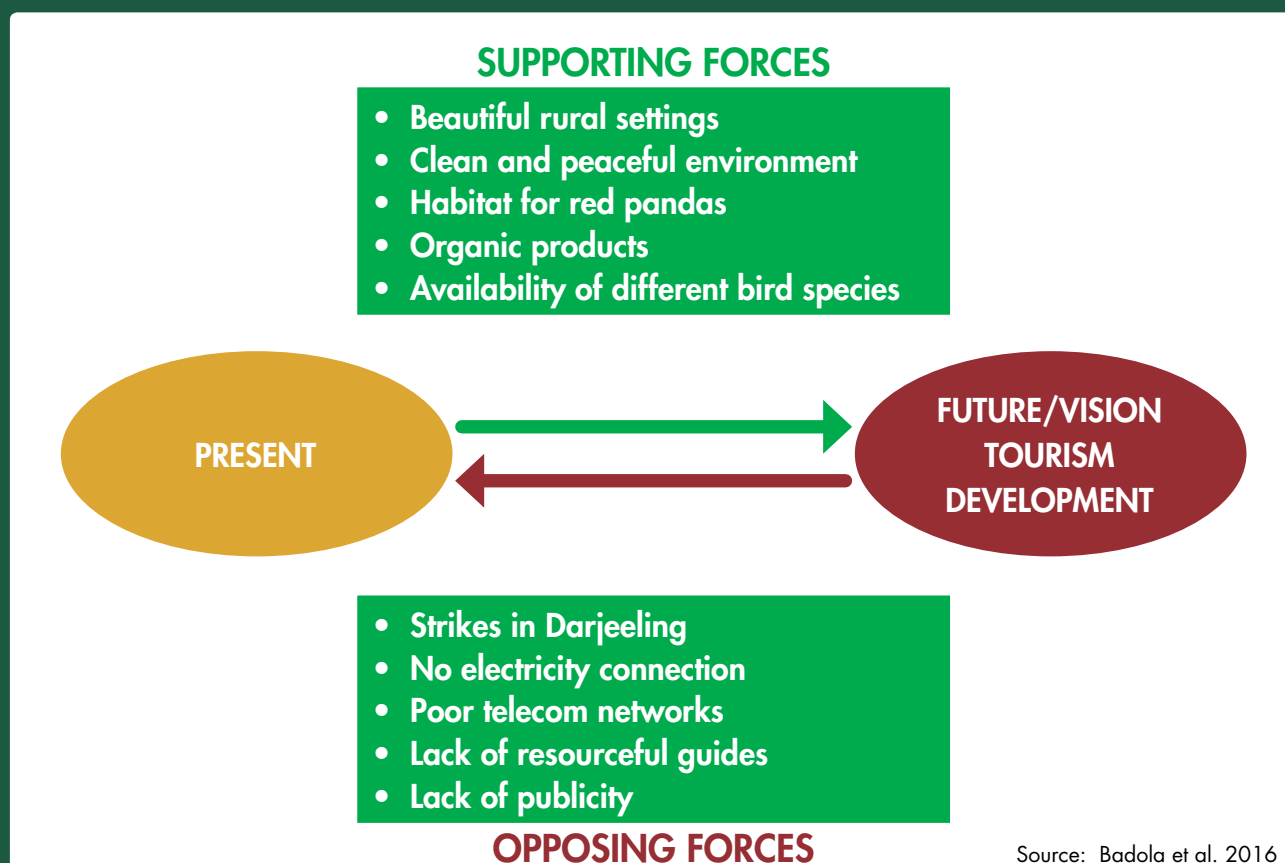|	Upland	Lowland	Greek	Lowland	Cana	Village	Upland	Greek	Upland
Water source	Rain	Rain irrigation	Rain runoff/ seepage	Rain irrigation		Rain well	Rain	Rain	Rain
Soil	Sandy loam		Rocky	Clay	Rocky	Sandy clay loam	Sandy clay loam		Clay
Crops	Rice, sugarcane, eggplant, bean, corn	Rice, sesbania, pepper, garlic, tomato	Bamboo	Rice, sesbania, pepper, garlic, tomato	Bamboo	Okra, horserat-lish, grapes, beans	Peanuts, Cassava, Rice, Cem, Beans	Sampoo	Rice bean sugarcane
Forages	Grassland for grazing	Gliricidia	Grass	Azolia	Grass		Weeds in plots	Guinea grass	Grass land
Trees	Gliricidia mango, leucaena, guava, banana, tamrind	Gliricidia	Banana, gliricidia, leucaena	Gliricidia, banana, leucaena, acacia, neem	Gliricidia, leucaena	Acacia, mango, guava, coconut, leucaena, jackfruit	Mango		Mango tamrind star-apple
Animals	Cow, carabao, goat		Catfish, mudfish, carp, frog, crab	Golden snails, pig, fish, duck, frog	Catfish, frog, snail	Dog, cat, pig, goat, cattle, turkey	Goat Carebak Cattle	Snail catfish	Cattle Corambao Goal
Problems	Erosion, lack of water	Pest and disease				Lack of effectiveness among local officials	Erosion Lack of water		Erosion lack of water
Opportunities						Accessibility to road			

Approaches and Steps

- Introduce the Force Field diagram.
- Explain that the left hand box labeled "present situation" represents "where we are now" with regard to the objectives of PEBM that generate community benefits and contribute to conservation, and local communities empowered and capable of conservation).
- The right hand box represents the future situation, as it will be in an improved state that achieves the objectives.
- The distance between the two boxes represents how far apart the two situations are, or how much improvement is needed to attain the future situation.
- Brainstorm all together and select a present situation that is relevant to the objectives and visualize the improved future situation of wider community benefits from participatory ecosystem management.
- Discuss how far apart these situations are in terms of how much effort   it will take to achieve the future situation. Draw the boxes a suitable distance apart to represent the degree of effort required.
- Portray in words or pictures the present and future situations in the boxes.
- Draw an arrow connecting the boxes to represent the "critical path" to achieving the improved future situation. The arrow should be drawn boldly to show confidence and determination, and even decorated to reflect the level of commitment and excitement.

- Now draw lines with arrows labeled "constraints" (or hindering forces that are in the way of achieving the desired situation) pointing downward and away from the critical path, and lines with arrows labeled "local resources" that will assist in achieving the future situation (e.g., skills, materials, funding, technology, commitment, etc.) pointing upward away from the critical path. Brainstorm and note in words (or pictures) constraints and local resources attached to the lines with arrows.
- Break into groups and discuss ways in which local resources can be strengthened, with specific actions such as training and capacity building. Share with the other groups, modifying, adding or deleting the recommendations.
- Ask the participants to sort the constraints or hindering forces according to the following criteria: easy to overcome, can be overcome but with difficulty, beyond the control.
- Return to the groups, take each constraint at a time and brainstorm appropriate strategies, actions, and skills/resources to weaken or eliminate the constraint. Phrase these as positive actions that build upon local strengths and capabilities, rather than looking outside for solutions. Share these with other groups for discussion and revision.
- Finalize the chart, and wrap-up with what the participants learned from the exercise, what they liked about it, and how it might be used to address other issues.

Comments

- Force field analysis is best carried out in small group of about six to eight people using flipchart paper or overhead transparencies so that everyone can see what is going on.
- Force Field Analysis is a useful technique for looking at all the forces for and against a plan. It helps you to weigh the importance of these factors and decide whether a plan is worth implementing.
- Force Field Analysis directly identifies constraints, or "hindering forces" to be overcome, and also identifies the enabling forces upon which strategies and options can be formulated. Discussion of constraints should address positive actions that build upon local skills and resources.

Figure 12: **Forced filled analysis of tourism development in KL-India**

SUPPORTING FORCES

- Beautiful rural settings
- Clean and peaceful environment
- Habitat for red pandas
- Organic products
- Availability of different bird species

PRESENT → FUTURE/VISION TOURISM DEVELOPMENT

- Strikes in Darjeeling
- No electricity connection
- Poor telecom networks
- Lack of resourceful guides
- Lack of publicity

OPPOSING FORCES

Source: Badola et al. 2016

Tips and Usefulness of the Manual

This manual on participatory ecosystem-based planning and management has been designed to help mid-level technicians and development workers learn ways to integrate more practical and frequently used participatory methods in the field. This manual is not a complete guide to participatory tools and techniques for the facilitator, but will provide many helpful tips and insights as to how individual tools can be used to produce optimum results. Here are a few key tips to keep in mind:

- The approaches and steps outlined for each tool in the manual should be regarded as general guidelines that can be adapted to suit the local context, perceptions of the participants, and the objectives of the exercise.
- The process for using the participatory tools is more important than the tool itself. In other words, your focus should be on the two-way processes of interaction, exploration, questioning, and analysis, rather than collecting extensive data. The more you focus on the former, the higher quality data you will generate.
- The tools and steps we outline are simple to use, relying mostly on oral and visual techniques such as resource mapping, focus group discussion, institutional diagram, transect walk, and mobility maps. This makes the tools and methods particularly suitable for varying literacy rates among populations.
- These tools and processes can be used for empowering local communities. The facilitators' role should be listeners and analyzers. They can play a catalytic role for helping local participants to apprehend their own problems and opportunities.
- Participation and empowerment cannot be created by the tools itself – proper attitudes and behaviour are necessary to support participatory approaches.

References and Study Materials

The provided information is for your general guidelines as it has been said that you should not follow tool but tools should be followed and used based on your objective and needs. You can have a look for the listed references for your better understanding.

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