The Application of Participatory Action Research to Climate Change Adaptation in Africa

A Reference Guide

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About CCAA

The Climate Change Adaptation in Africa (CCAA) research and capacity development program was launched in 2006

and is jointly funded by Canada's International Development Research Centre (IDRC) and the United Kingdom's

Department for International Development (DFID). It is hosted and managed

by IDRC from headquarters in Ottawa and three regional offices in Africa.

We aim to improve the capacity of African countries to adapt

to climate change in ways that benefit the most vulnerable.

The program works to establish a self-sustained African body of expertise on adaptation that responds to needs

defined by African communities, decision-makers, and institutions.

About IDRC

IDRC is a Canadian Crown corporation that works in close collaboration with researchers from the developing world in

their search for the means to build healthier, more equitable, and more prosperous societies.

www.crdi.ca

About DFID

DFID is the part of the UK government that manages Britain's aid

to poor countries and works to get rid of extreme poverty

www.dfid.gov.uk

About CIFOR

The Center for International Forestry Research is a nonprofit, global facility dedicated to advancing human wellbeing,

environmental conservation and equity. We conduct research that enables more informed and equitable decision making

about the use and management of forests in less-developed countries.

www.cifor.cgiar.org

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List of Acronyms

ACM	Adaptive collaborative management
AR	Action research
CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CAR	Central African Republic
CCA	Climate Change Adaptation
CCAA	Climate Change Adaptation in Africa
CIFOR	Center for International Forestry Research
CoFCCA	Congo Forest and Climate Change Adaptation
C&I	Criteria and indicators
DFID	Department for International Development
IDRC	International Development Research Centre
M&E	Monitoring and evaluation
NRM	Natural resource management
PA	Participatory action
PAR	Participatory action research
PM&E	Participatory monitoring and evaluation
R&D	Research and development

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ACKNOWLEDGEMENTS

INTRODUCTION

It is now widely recognized that global climate change is a reality and is already affecting economic growth, food security, and rural livelihoods. Climate change adaptation is an imperative, as the impacts of climate change mitigation strategies normally play out over the medium term, while the effects of past activities will continue to play out for several decades to come (Stern 2006). Climate change, however, does not affect all regions or households evenly. The Millennium Ecosystem Assessment (2005), Stern Review (2006), and Inter-governmental Panel on Climate Change 4th Assessment Report (2007) all emphasized the particular vulnerability of sub-Saharan Africa, particularly poorer households, to the impacts of climate change. These studies also highlight the region's limited capacity to cope with projected climate change scenarios. A study commissioned by the United Nations Institute for Training and Research (UNITAR) revealed that many African countries do not take climate change as a key priority in their decision-making processes (Denton and al. 2001).

Numerous factors underscore the region's vulnerability to climate change impacts (Nkem, personal communication). First, livelihood activities of the poor majority are highly dependent on climate-sensitive activities for their household food, energy, health, and hygiene. These same livelihood activities contribute a significant proportion to the gross domestic product of countries in the region, making national development also susceptible to climatic uncertainties. Delegates to the 16th session of the UN Commission on Sustainable Development recently highlighted the link between the current food crisis and climate change, and stressed that climate change may undermine progress toward all of the Millennium Development Goals. Climate change is also expected to compound existing vulnerabilities associated with both climatic and non-climatic factors, increasing the frequency of exposure to climate extremes and heightening existing economic, political, and ecological risks. While Africans have developed complex adaptive strategies to deal with climatic and other vulnerabilities over the millennia,, their capacities have increasingly been taxed by the fast pace of change of socio-cultural, political, economic, and climatic systems.

In the face of this challenge, the International Development Research Centre (IDRC) of Canada and the Department for International Development (DFID) of the United Kingdom have embarked on a large initiative to enhance climate change−related adaptive capacity in Africa. The Climate Change Adaptation in Africa (CCAA) research and capacity development program aims to significantly improve the capacity of Africans and organizations to adapt to climate change in ways that benefit the most vulnerable members of society. Building on existing initiatives and past experience, the CCAA program has worked to establish a self-sustained, skilled body of expertise in Africa. One of the first activities conducted under this program was a background consultation in 25 African countries to identify adaptation imperatives. Four major priorities were highlighted: knowledge transfer (sharing with communities and learning from their experience); effective and endogenous assessments of vulnerability and adaptive capacity; strengthening of national institutions to develop and use climate information for decision-making at appropriate scales; and improved institutional frameworks for adaptation.

Based on their long history of experience in applying and supporting others to apply a suite of research methods, CCAA has prioritized participatory action research (PAR) as a tool for learning and institutional transformation. The understanding that reality is socially-constructed and viewed in different ways by different actors in a system points to the need for external researchers to be engaged in processes of joint learning with those directly affected by climate change. The CCAA program sees PAR as a means of bringing together diverse stakeholders as co-learners or co-researchers and bringing the knowledge and skills of each player to bear on the problem (Christie et al. 2000). This approach promotes the use of local knowledge, leads to more relevant research questions, and ensures that results and skills are shared with those who will use them (Checkland 1991; Checkland and Holwell 1998). PAR may therefore be an approach that is particularly well suited to climate change adaptation. By fostering sustained learning among a group of stakeholders, each of whom brings a unique perspective to bear on a problem, devising "best bet" options to enhance adaptive capacity, testing these in practice, monitoring outcomes, and adjusting are perhaps the best means to approach the uncertainty of complex socio-ecological systems (see Colfer 2005; Lebel et al. 2006).

1 *These include agriculture, fisheries, pastoralism, and the collection of forest products.*

This document originated from a workshop held in May 2008 whose aim was to distill the experiences of seasoned PAR practitioners across the continent into diverse development and national resource management challenges. As most of these experiences dealt with complex socio-ecological systems but without an explicit focus on climate change adaptation, this Reference Guide is intended as a draft, describing the anticipated relevance of PAR to climate change adaptation and presenting a "best bet" approach to the application of PAR in addressing adaptation challenges. As such, further elaboration of this PAR methodology is viewed as a research process in and of itself, with this draft guide being refined through field-based application and learning in the context of the CCAA program.

Following a description of the purpose of this guide and the targeted end users, and an introduction to the theory underpinning the application of PAR to climate change adaptation, we present a detailed description of the PAR methodology. Diverse PAR tools and stages in the PAR process are portrayed in detail, including basic tools that are used throughout the PAR process (facilitation, process documentation), preparatory steps in building teams and engaging stakeholders, ways of understanding the problem or opportunity and conceptualizing change, planning, managing of change, and the role of empirical research as inputs to decision-making. The guide finishes with a description of common challenges faced in the implementation of PAR and how these can be effectively addressed.

Purpose

The primary aim of this Reference Guide is to provide a set of concepts and practical tools for use by Climate Change Adaptation in Africa program grantees working to support stakeholders (communities, government agencies, policy makers) in their efforts to adapt – or to help others adapt – climate change. The Guide nevertheless presents a generic set of concepts and tools that is likely to be of use to others engaged in climate change adaptation research and development efforts in the region, or those working to address other development challenges requiring a multi-stakeholder learning-by-doing approach.

The guide is meant as a reference document to assist diverse actors in an innovative system to learn in a systematic way from experience acquired through problem-solving, to draw out lessons learned, and to apply these lessons to a new round of challenges, which become ever more complex as "first-generation" challenges are tackled. It aims to fill an ideological, methodological, and institutional gap between research and action (development, adaptation) by enabling systematic learning to take place on the change process itself – allowing lessons to be learned about "what works where, and why."

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WHO IS THIS REFERENCE GUIDE FOR?

This Reference Guide was produced for the following key audiences:
1.   Partners implementing research projects across a range of sectors and climate change adaptation Challenges and
2.   Other change facilitators (development workers, conservationists, institutional change experts, policymakers) and researchers an interest in supporting climate change adaptation efforts in Africa and beyond.

For the effective application of participatory action research (PAR), facilitators need to have prior facilitation experience and be familiar with a set of facilitation and/or participatory rural appraisal tools. This guide is not intended to be a comprehensive guide to facilitation. Therefore, tools that may be useful in facilitating particular steps in the methodology are mentioned but not always described in detail.

THEORY

This section presents and describes four important concepts relevant to the application of participatory action research (PAR) to climate change adaptation challenges: climate change; climate change and adaptation; participatory action research; and adaptive management. An introduction to each concept is provided below to give users of this guide a solid grasp of the basic concepts and principles of PAR practice.

4.1. Climate Change in Africa

Africa is expected to be the continent most affected by global warming. African drylands, which are expected to get drier with global warming, are particularly vulnerable. Projections show West Africa as one of the regions with the most uncertainty concerning future trends in precipitation, but according to Anderson (2008)[2], an average of major models suggests a modest increase in rainfall for the Sahel, with little change over the Guinean Coast. Analysis of climate change vulnerability hotspots in Africa by Thornton et al. (2008; 2006)[3] indicates that in sub-Saharan Africa, regions to be adversely affected by 2050 include the mixed arid and semi-arid systems in the Great Lakes region of East Africa, the coastal regions of East Africa and many of the drier zones of southern Africa.

Some of the key vulnerabilities identified in the latest Inter-governmental Panel on Climate Change (IPCC) report include the following:
- Water resources, especially in international shared basins where there is potential for conflict and a need for regional coordination in water management;
- Food security, at risk from declines in agricultural production and uncertain climate;
- Reduction in natural resource productivity and biodiversity that might be irreversibly lost;
- Vector- and water-borne diseases, especially in areas with inadequate health infrastructure;
- Coastal zone vulnerability to sea-level rise, particularly roads, bridges, buildings, and other infrastructure that is exposed to flooding and other extreme events; and
- Exacerbation of desertification by changes in rainfall and intensified land use.

Indeed, between 75 million and 250 million people are likely to be exposed to increased water stress due to climate change by 2020. Agricultural production and access to food are expected to be severely compromised, with a decrease in area suitable for agriculture, length of the growing season, and yield potential exacerbating food insecurity, particularly in the margins of drier areas. Yields in rain-fed agriculture in some countries could be reduced by 50% by 2020. Rising water temperatures in large lakes due to global warming could result in a decrease in fisheries resources, negatively affecting local food supplies. Sea-level rise by the end of the 21st century will affect low-lying coastal areas with large populations, with the cost of adaptation estimated at between 5 and 10% of gross domestic product (GDP). Further degradation of mangroves and coral reefs is likely to result in additional consequences for fisheries and tourism (IPCC 2007) – a major contributor to GDP in many countries.

4.2. Climate Change Adaptation

Adaptation to climate change entails changes in processes, practices or structures, either autonomous or planned, to minimize potential damage or to take advantage of opportunities associated with climate change. Effective adaptation strategies should reduce present and future vulnerability and may include changes in institutional or individual practices in response to perceived changes, coping strategies, or proactive actions taken by various actors to capitalize on new opportunities (Huq and al. 2003; DFID 2004). Key concepts that will help to standardize language in the area of climate change adaptation include:

Adaptation: This consists of adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderate harm or exploit beneficial opportunities.

Adaptive capacity: This is the ability of a system to adjust to change (including climate variability and extremes) to moderate potential damages, take advantage of opportunities, or cope with consequences. This capacity depends largely on one's access to assets (natural, human, social, physical and financial), and how well these assets are utilized. Those with higher adaptive capacity are often able to recover or adapt to new conditions. Greater adaptive capacity means the ability to cope with and/or reduce levels of exposure and sensitivity.

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[2] *Haramata 53, May 2008.*
[3] *Find the link to the first document here: http://www.aaae-africa.org/afjare/rticles.html#Special_Issue:_Climate _ change_and_African_Agriculture_, and the link for the 2006 document here: http://www.dfid.gov.uk/research/mapping-climate.pdf.*

Vulnerability: This is the degree to which a system is susceptible to, or unable to cope with, adverse effects of change, including climate variability and extremes. It is understood as a function of exposure (the character, magnitude and rate of climate change and variation to which a system is exposed), sensitivity (structural factors that either heighten or lessen the impact of exposure, such as land tenure), and adaptive capacity.[4]

Coping capacity: This refers to the means by which people or organizations use available resources and abilities to face adverse consequences that could lead to disaster. In general, it involves managing resources, both in normal times as well as during crises or adverse conditions. The strengthening of coping capacities usually builds resilience to withstand the effects of natural and human-induced hazards.[5]

Over the generations, African farmers have acquired detailed knowledge and skills that have enabled them to adapt to variable climate and extreme climatic events of the past. However, the more intense and frequent occurrence of extreme climatic events, together with population increase and mobility, is rendering some of these adaptive strategies inadequate. The high frequency of extreme events means that those impacted often do not have adequate time to recover and accumulate assets or resources for use during subsequent difficult times. There is hence a need to strengthen these strategies and support the development of better ways of managing the anticipated impacts of climate change. Vulnerability in Africa results from high levels of exposure (a highly variable climate), high sensitivity (from heavy reliance on rain-fed agriculture, limited access to information on climate predictions, lack of secure access to resources, and social disruptions of various cause[6]) and limited adaptive capacity. Adaptive capacity is in turn compromised by limited economic resources, low levels of technological and infrastructural development, erosion of local knowledge systems, limited incentives to invest in (long-term returns from) land, poor governance, and mismanagement of resources.

Adaptive Management

Little is known about how and at which speed climate change will affect the various functions, goods, and services rendered by ecosystems, and how these, in turn, will influence human systems and adaptive capacity. The large number of political, social, economic, and ecological factors that individually or collectively influence climate change adaptation makes the management process full of uncertainty and complexity. Yet, despite lack of complete knowledge and information on these processes, decisions must be made on their management. The best approach, consequently, will be to prepare ourselves to live and deal with surprises and uncertainties by treating each management strategy as an experiment and an opportunity to learn. Dealing with novel situations therefore requires the capacity to learn and adapt, and to accept one's knowledge as partial. Peterson et al. (1997) argue that even climate change policy could benefit from taking an adaptive approach. Considering the uncertainty surrounding climate change, not only management systems but also policies that influence in some way − or are explicitly aimed at enhancing adaptive capacity − must be continually questioned and refined, based on learning.

Adaptive management is an approach for enhancing the capacity to learn and adapt by enabling managers to accommodate uncertainty and minimize risk and vulnerability. It is a process by which people adjust their strategies of management in order to anticipate or adapt to changes (Wollenberg et al. 2000). The approach is "based on the recognition that the management of natural resource is always experimental, that we can learn from implemented activities, and that natural resource management can be improved on the basis of what has been learned" (Borrini-Feyerabend et al. 2000). Adaptive management acknowledges that management of complex systems must take into account human dimensions and their interactions with natural systems (Lee 1993; see also Box 1). The linear or static management of such perpetually changing systems, as exemplified by the continuous application of a strict management plan, cannot enable the achievement of expected results. "Plans rarely work as originally conceived, and successful management requires regular feedback" (Colfer 2005:3). It is necessary to develop an iterative, adaptive model of natural resource management or change, capable of integrating in a conscious way the uncertainties and surprises that inevitably arise, and one that may be readily adjusted or renewed through learning and capitalizing on lessons. Adaptive management is recommended in situations that require that management actions be taken while knowledge on the impact of those actions is inadequate. PAR is a fundamental tool for enabling adaptive management in the context of climate change.

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4 *See glossary of terms used by Working Group II (Impacts, Adaptation, and Vulnerability) of the Third Assessment Report of the Intergovernmental Panel on Climate Change (2001). Report available at: http://www.grida.no/climate/ipcc_tar/wg2/689.htm.*
5 *See "Terminology of disaster risk reduction" of the United Nations International Strategy for Disaster Reduction. Available at: http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm.*
6 *Including population growth, epidemics, forced and spontaneous migrations, and warfare and political violence.*

Adaptive collaborative management (ACM) is an approach to adaptive management that explicitly acknowledges the partial nature of knowledge, be it the implicit knowledge applied by resource users in the management of complex socio-ecological systems or the explicit knowledge codified in disciplines and books. This implies reaching a shared understanding among stakeholders that everyone's knowledge base is only partial (including that of the more "educated" outsiders), that no one is able to predict outcomes with certainty, and thus that the group's actions are by definition experimental. It is therefore also important that the stakeholders who will directly bear the consequences of such experimentation are empowered to weigh the risks, and only take on those risks they are willing and able to bear. For more information on the ACM approach, see Colfer (2005), Kusumanto et al. (2005) McDougall et al. (2009) and Ruitenbeek and Cartier (2001). For more information about the relevance of ACM to climate change adaptation, see CIFOR (2008).

Box 1. Complexity of natural and human systems (A.M. Tiani)

Natural resource management is characterized by its extreme complexity, due to the diversity of natural and human systems. Thus, on the same space, the following could co-exist:
-   A diversity of resources, goods, and services filling a multiplicity of social, cultural, economic, and ecological functions;
-   A multiplicity of actors occupying various spheres and representing various interests, from local to global;
-   Various objectives, interests, and motivations, sometimes contradictory (e.g., production and conservation);
-   Different systems of rights and tenure that are overlapping, embedded, or mutually exclusive; and
-   Power dynamics shaped by complex networks of alliances and ruptures between actors, and by constraints and opportunities often fashioned by unpredicted externalities.
This complexity means that attempts to control variables may often lead to unpredictable outcomes, requiring a more flexible approach to management.

4.3. Participatory Action Research

Participatory action research (PAR) is a reflective process of progressive problem-solving led by individuals working with others to improve the way they address issues and solve problems. PAR is generally applied within social learning contexts, where multiple actors collectively construct meanings (problem definition, objectives) and work collectively toward solutions (Maarleveld and Dangbégnon 1999; Pretty and Buck 2002). Lewin, a pioneer of action research, describes the PAR process as "a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action" (Lewin 1946; see also Figure 1). Iterative cycles of organizational or community-level action and reflection make change processes more robust and effective by ensuring that systematic learning and sharing take place, by fostering continuous adjustment of actions to align them with agreed-upon objectives, and by empowering the actors themselves to learn and adapt. PAR combines two primary activities: research and a facilitated process of social learning guided by a shared vision or set of goals to be achieved.
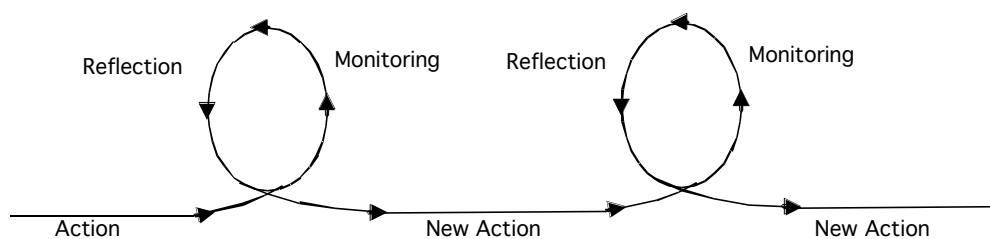
Figure 1. *Graphical illustration of the iterative cycles of learning and doing in the PAR process*

It is often assumed that PAR is a tool that is useful only for solving local-level problems and social issues. However, PAR may be carried out within research and development organizations as a process of institutional

change, by policymakers who are interested in taking an adaptive approach to policy implementation, or by local communities as they seek solutions to common problems (German and Stroud 2007). It may also be used to enable biophysical solutions to work better by ensuring that diverse value systems are considered, and by facilitating an adaptive approach to change (Hagmann 1999; Hagmann and Chuma 2002).

German and Stroud (2007) differentiate between participatory action research (PAR) and action research (AR). According to them, PAR is about "getting change to work," while AR is about "understanding the nature of change processes and distilling lessons of use to a wider audience striving to solve similar problems elsewhere." Whereas PAR aims to empower the actors themselves to identify key development bottlenecks and to experiment with different approaches for addressing and ultimately breaking through bottlenecks, AR enables a better understanding of the key elements to successful processes of development and social change (Ibid.). Differences between participatory action research, action research, and conventional research are summarized in Table 1.

Table 1. Characteristics of different learning approaches (German and Stroud 2007)

Characteristics	Participatory Action Research	Action Research	Conventional (Empirical) Research
1. Purpose	Solve localized problems.	Derive lessons for the global community on how to solve certain types of problems.	Characterize current or future situations and trends.
2. Tools[1]	Interactive (facilitation, negotiation, participatory monitoring and evaluation)	Extractive (monitoring the performance of scientific indicators, impact assessment, process documentation) and Interactive (PAR methods)	Extractive (a large body of methods derived from diverse social and biophysical sciences)
3. Carried out by whom?	Actors in a change process (farmers, leaders of organizational change, policymakers, urban residents).	Researchers with an interest in "process" (how transformation occurs); change agents interested in deriving generalizable lessons.	Researchers. At times, change agents will also turn to conventional research either for inputs (i.e. technologies) or to evaluate the impact of change processes they facilitated.

[1] PAR is not just a set of tools, but a philosophy and broad approach to knowledge generation and societal engagement.

This Reference Guide makes no such differentiation, as it combines the three "learning approaches" in the PAR process. However, it is useful to understand that the action research team has a set of unique roles relative to the other stakeholders involved in the change process as a result of its interest in distilling general lessons from specific change processes for a wider audience (the "research" in PAR). The uniqueness and complementarity of these different approaches will therefore remain apparent to many readers as they move through different sections of the guide. It will also be apparent in the way in which PAR and action research teams are discussed – namely, as distinct yet interdependent entities in the change process. For an illustration of how the research and the action are related to one another over time, see Figure 2. This separation of research from action should not be taken as something endorsed by the authors; it is simply a didactic means to illustrate the role of research within a PAR process. In practice, researchers should move seamlessly between their roles as participants in a change process (facilitation, empirical research, or partnership) and in more reflective, analytical work about the change process itself. The boundaries between these two "layers" are therefore fuzzy. One of the greatest challenges researchers face is to understand this "seamlessness" between research and action – and to move beyond the tendency to either lose themselves in "development" cycles or undermine the continuity or attention given to PAR by failing to drop their own research agendas.
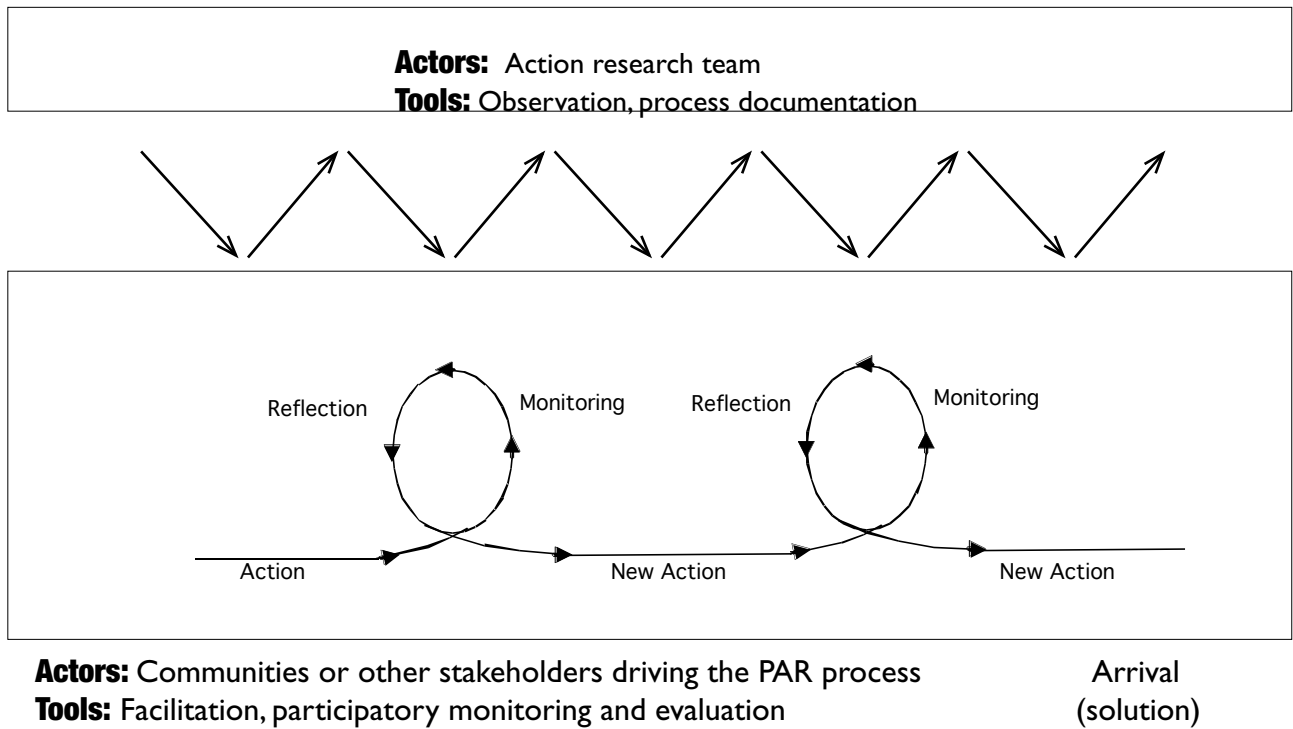
Figure 2. *Illustration of the relationship between action research (upper box) and PAR (lower box)*

In addition to differentiating PAR from action research, it is important to differentiate PAR from participatory rural appraisal (PRA) and from participatory research (PR). PRA is a set of analytical tools that enables villagers to do their own analysis of the realities that affect them, with a view to making use of such information. It is therefore not a comprehensive approach to enabling change, but may be employed within a change process to identify problems (for example, participatory mapping as a tool for participatory diagnosis of degradation "hotspots"), to establish baselines, or to identify constraints and opportunities (for example, periods within annual labour calendars when there is room for accommodating more labour-intensive activities). Participatory research, on the other hand, is research that is conducted as an equal partnership between external "experts" (generally, scientists) and members of a community. For research to qualify as participatory, it should be characterized by a reciprocal appreciation of each partner's knowledge and skills at each stage of the project, and research outcomes should be useful to the community. In this respect, PAR could be considered one form of participatory research. However, PAR tends to be much broader than participatory research in its iterative nature and, therefore, in its ability to enable more far-reaching change (social or system-wide transformation, rather than just the testing of technologies). Furthermore, failure to ensure local ownership of the process, and to place the nexus of power and decision-making squarely in the hands of the intended beneficiaries, subjects it to abuse:

> At its best, the process can be liberating, empowering and educative, a collegial relationship that brings local communities into the policy debate, validating their knowledge. At its worst, it can degenerate into a process of co-option of local communities into an external agenda, or an exploitative series of empty rituals, imposing fresh burdens on the community's time and energy and serving primarily to legitimize the credentials of the implementing agency as 'grassroots oriented'. [7]

This challenge and the abuses it gives rise to led, earlier on, to attempts to classify participatory research into different forms (Biggs 1989).

Figure 3 depicts the inherent tension that tends to exist in participatory research between science quality on the one hand and improved development on the other – a tension that more often than not tends to result in contractual and consultative modes of research.

Improved
Science
Quality

Contractual / Consultative / Collaborative / Collegiate

Improved
Development
Impact

Figure 3. *Different types of participatory research (Biggs 1989)*

In PAR, the same tension exists, but efforts to put communities squarely in control of the process mean that the process tends to lead to an emphasis on development impact over research per se. The challenge is always there for researchers to ensure rigour in the learning process and distill findings or lessons of wider relevance (Box 2) – and thus leverage the potential of PAR in informing wider communities of practice.

Box 2. The question of validity in action research and PAR

Effort to put communities in control of the change process has created a certain discomfort among those in the long-established conventional or empirical research tradition. This has caused some to question the validity of action research and PAR. The questions often asked include, "How can one derive general lessons about change from happenings within a specific context, given the cultural, institutional, and ecological particularities of each setting?" "How can claims to validity be supported when there are no bearings to hold methods constant through time?" Some authors claim it is simply a matter of keeping one's "intellectual bearings in a changing situation" (Checkland and Holwell 1998:13). These authors suggest that claims to validity require a "recoverable research process based on prior declaration of the epistemology in terms of which findings count as knowledge will be expressed" (Checkland and Holwell 1998:9). In other words, one cannot engage in change without prior declaration of the scope of research and how it will be carried out. Elements of this process include prior declaration of an area of concern, a framework of ideas, and a methodology (Checkland 1991; Checkland and Holwell 1998). An area of concern is a topic around which the research is organized – in this case, processes or strategies for enhancing people's adaptability to climate change. The broader framework of ideas may include a conceptual understanding of the deficiencies of current practices, support services and policies on adaptation to climate change, and/or a set of guiding values (e.g. equity, sustainability) known to be deficient in current practice. It may also be a body of theory informing change (i.e. property rights and collective action theory, political ecology, ecosystem theory). As the effectiveness of change is largely determined by the actors themselves, the above authors would probably be comfortable with locally established aims and participatory evaluations of the change process as evidence of its effectiveness. Researchers with a more conventional approach to scientific validity may require research questions and hypotheses to be clearly stated up front and held constant, lessons to be derived from cross-site or cross-case comparison (within one or more sites), and conventional research to validate claims of effectiveness of the change process.

PAR for Climate Change Adaptation

The successful application of PAR in the past to solve problems in complex socio-ecological systems (Colfer 2005; Hagmann and Chuma 2002) and to facilitate institutional change (Elliot 1991; Hagmann 1999) makes many of the lessons and approaches readily applicable to climate change adaptation. However, it is important to also distill the features of PAR that make it uniquely suitable and those that limit its applicability to climate change adaptation. Key features of climate change and adaptation likely to shape the application of PAR include these:

- Climate change is a slow variable, with changes playing over the medium to long term;
- "Adaptive capacity" can best be assessed over long time scales[8];
- The predictability of climatic change is limited[9];
- Local and scientific knowledge[10] on climate change and its impacts are inaccurate and/or incomplete;
- Nested levels of socio-political organization and response influence sensitivity and adaptive capacity; and
- There is a complexity (of climate change impacts, solutions)[11].

While many of these characteristics are not unique to climate change, they interface in important ways with the PAR methodology. Perhaps the biggest weakness of PAR derives from the mismatch between "slow variables" (climate change, adaptation) that play out over long time frames, and the short-term thinking that often characterizes human decision-making (Holling and Meffe 1996). The long time scales over which the impacts from climate change are manifest, and over which "adaptations" may be evaluated, limit human capacity to respond to the appropriate stimuli (see, for example, Abel and Langston 2001). On the other hand, if PAR

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8 *The resilience literature highlights how today's solution may become tomorrow's problem (Holling and Meffe, 1996).*
9 *This is particularly true for the magnitude and variability of climate change, and less for the direction of change.*
10 *Patterns of change in the past cannot be taken as indicative of future variability and rates of change.*
11 *Impacts may be direct or indirect, while (partial) solutions may take diverse forms (technologies, support services, information, policies) and be found at diverse levels of socio-political organization (individual, community, district, nation, global community).*

is viewed not only as a tool for solving particular climate-related problems, but also as a tool for fostering sustained learning and adaptation over time through partnerships between at-risk communities, government institutions, and other actors, it becomes a tool that (together with its corollary, adaptive management) is uniquely suitable to climate change adaptation. It is the ongoing and capacity-building nature of action research processes that make action research appropriate in the context of ongoing climatic change and variability. The benefits of PAR for addressing challenges related to complexity and nested levels of socio-political organization are similar: prescriptive solutions are unlikely to work, requiring an adaptive approach to change that builds upon successes and failures in charting a more desirable future.

As for the limited predictability of climate change and limitations in local and scientific knowledge, PAR can strengthen understanding by building upon the complementarities of local and scientific knowledge and fostering a more nuanced understanding of systems. These complementarities may cover aspects such as what is observed (content), what matters (motivation), and time and space dimensions (scale) (DeWalt 1994). Scientific knowledge tends to be stronger at deriving understanding at larger spatial scales, while local knowledge is often stronger at understanding the particularities of a given location. Regarding temporal dimensions, local and scientific knowledge each have their strengths in observing change over longer time frames. However, scientists may be able to predict future climatic change better, while communities tend to be more versed in historical change and how to deal with uncertainty, based on their own experience with past climatic changes and related adaptive strategies − as well as their understanding of what worked and did not work, and why. While PAR may be beneficial in bringing these two bodies of knowledge together around a common problem, it is important to recognize that ultimately it is the characteristic of humility that enables an effective partnership between scientists and local communities. Within PAR, it is important to inculcate a common understanding that all knowledge is partial and in part subjective, and that it is through partnership, social learning, and active monitoring that the unknowns will diminish, relative to what is known.

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[12] *Even as applied to addressing simpler social and biophysical challenges, successful PAR processes almost always require a fair amount of time, given both the complexity of the approach and the basic steps involved (evaluating situations, setting targets, strengthening social capital, facilitating, monitoring, replanning).*

METHODOLOGY: STEPS, PROCESSES, & TOOLS

5.1. Cross-cutting Processes / Tools

Two key processes, facilitation and process documentation, will appear at all stages in the participatory action research (PAR) process and will therefore be described separately in this section. Facilitation is the foundation of the change process (action), and process documentation is required to make systematic observations on change as it occurs (research). While participatory monitoring and evaluation is equally fundamental to PAR, it is only implemented once change has been conceptualized and is undergoing implementation. It is therefore presented below in the section on − Managing Change."

5.1.1. Facilitation

Defining Facilitation

Facilitation is the foundational element of PAR. A skilled facilitator can make a big difference in the failure or success of a PAR process in reaching its objectives by engendering trust, showing respect, posing the right questions to encourage reflection about new angles of an issue, respectfully challenging assumptions, equalizing power imbalances, or opportunistically applying the right set of tools to address emerging challenges. Facilitation involves applying a set of processes and "soft skills" to help groups to attain their objectives.[13] It involves an individual or group − preferably someone with knowledge of the issue being addressed and relevant prior experience − leading a group through a process of change. The facilitator helps the group to jointly identify problems and opportunities; discuss and negotiate desired future states; to jointly plan; frequently monitor performance, reflect on progress made toward agreed goals, and adjust action plans; and perceive and respond to emerging challenges and opportunities. The qualities of a good facilitator are summarized in Box 3.

> **Box 3. Qualities of a good facilitator (E. Chuma and C. Colfer)**
>
> • Trust in other people and their capacities
> • Patience and good listening skills
> • Ability to effectively clarify, formulate and communicate ideas
> • Confidence without arrogance
> • Good life experience and a good grasp of common sense
> • Respect for the opinions of others, not imposing ideas
> • Practice in creative and innovative thinking
> • Ability to create an atmosphere of confidence among participants
> • Ability to encourage fair attention to minority and otherwise marginalized views
> • Flexibility in changing methods and sequences, not always sticking to a pre-set sequence of techniques
> • Knowledge of group development, including the ability to sense a group's mood and change methods or adjust the program on the spot
> • A good sense of the arrangement of space and materials in order to create an attractive learning and sharing environment
> • Skills in drawing and handwriting/visualization
> • Enthusiasm (positive and forward-thinking)
> • Awareness of his or her own philosophical biases (and careful not to manipulate group outcomes for personal benefit in the name of participation)

Facilitation has many different purposes. These include
- Assisting others to identify and articulate problems or opportunities;
- Mobilizing latent potential of actors toward addressing their own needs;
- Fostering enthusiasm and motivation around a common cause;
- Assisting a person or group to direct their behaviour toward a certain end;
- Coordinating inputs into common actions;

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[13] *We have intentionally chosen to exclude the financial and project management functions that the word's colloquial usage often implies.*

- Strengthening communication and engendering trust among actors involved in an event or change process, particularly to support the poorest and most vulnerable groups;
- Enabling active involvement of different stakeholders or groups in actions designed to achieve commonly agreed objectives;
- Creating an atmosphere conducive to open dialogue and "win-win" negotiation; and
- Serving as a node in a network that links participants to outside sources of funds, expertise, and information.

A good facilitator is capable of managing group dynamics, including power imbalances that threaten the "voice" of certain actors. He or she should be conversant with techniques for team-building and visualization; familiar with principles of adult learning; and able to employ questioning techniques to encourage deeper reflection or encourage the group to sharpen its focus on the issue at hand. A good facilitator will have both technical knowledge of the issue being discussed and an array of personal qualities, including empathy, flexibility, and creativity, that engender respect and enable him or her to manage group dynamics. Facilitators must also have an array of "soft skills," including good listening skills to enable follow-up on all contributions, the ability to respect and impartially consider unorthodox views, the ability to perceive and manage latent conflict, tools and methods for facilitating different kinds of situations, and the analytical capacity to integrate and synthesize diverse views to distill an emerging consensus or key points of difference. Importantly, facilitators must have the ability to transfer the above skills to members of the group, since in most cases the facilitator will be externally funded and short-term while local facilitators are needed to ensure continuity. These may

> **Box 4. "Core functions" of the facilitator**
> - Assists the group in developing a collective vision or "guiding star," which will serve as a point of continuous reflection and alignment during the change process.
> - Enables the group to identify means to accomplish agreed-upon objectives.
> - Encourages consideration of alternative views and actions, and helps to reconcile divergent views, interests and positions.
> - Manages power dynamics to level the playing field and foster equitable participation and outcomes.
> - Creates a platform for knowledge sharing, openly valuing local knowledge and contributions, and drawing out complementarities with external knowledge.
> - Helps the group to keep focused and on track, while flexibly considering complementary proposals for action that emerge along the way.

be distilled into a set of "core functions" of the facilitator (Box 4).

Methodology

Given the fact that facilitation is an art, perhaps the best way to explain the methodology of facilitation is in terms of its core principles. These include the following:

- Informality and humility – This is key to creating a relaxed atmosphere for free interaction, creativity and active participation by all. Therefore, participants are encouraged to be as informal as possible. The use of hierarchical titles is avoided.
- Inclusiveness – The facilitator should foster the participation of everybody, thus giving priority to the quiet ones to speak up (everyone's voice should be heard).
- Open dialogue / multilogue – The process should not be a one-way communication, but rather an open dialogue among all participants. The seating arrangement should encourage active participation of all in order to encourage free flow of information.
- Ownership by participants – Some events might have one key organizer, such as the facilitator, but the process should be co-created (together with the participants) to have their active input.
- Mutual respect – The facilitator should appreciate any contribution and there should be an environment of mutual respect between the facilitator and participants, and among participants themselves - though there might be different levels of understanding of the issue. There should be no questions considered stupid, nor answers considered wrong. Participants are encouraged to ask any question, so that all angles of the issue are explored and different perceptions are respected.
- Transparency – All decisions should be made openly – there should be no "hidden agendas."
- Integrity and impartiality – The facilitator should be as independent as possible, and should not push a particular agenda, but rather guide a process. The facilitator should not be taking sides, but make an effort to balance contributions to try to satisfy every participant.

- Flexibility – The facilitated event should not have a rigid agenda. The process should be flexible in order to cater for any emerging or burning issues.
- Thinking outside the box – Participants should be continuously reminded, "If you do what you always did, you will always get what you always got" and therefore be encouraged to think outside the box. Participants should be challenged to continuously reassess their perceptions in order to see if there are new ways to think about an issue, which will be very useful in generating new ideas.
- Honesty and political incorrectness – The tendency to be polite, especially when very sensitive issues are being discussed, should be discouraged, as it often makes people push the real issues under the carpet. Participants should be encouraged to be "politically incorrect" and lay their opinions on the table without fear.
- Empathy – The facilitator should try to understand the feelings of the participants. This will help to minimize anything that might want to hinder participants' full and active involvement.
- Deliberation – All issues should be given adequate attention and careful consideration during discussions, but within reason and with respect to the local people's time constraints.
- Cultural and social appropriateness – The facilitator should respect the beliefs and values of the participants, even if he or she does not agree with them.
- Humour – A light touch to serious proceedings allows participants to loosen up. The facilitator should, however, remember that the aim is to secure the participation of everybody and to achieve certain objectives – and not just to entertain.
- Attentiveness – The facilitator should be able to pick all points made, from the loudest to the quietest contributors, and be able to hear "what is said and what is not said."

The dynamic nature of facilitation makes it difficult to summarize facilitation as a set of sequential steps, since new facilitation events or tools are selected strategically based on the dynamics of the context in which a facilitator is operating. However, it is possible to distill a set of elements or steps that are common to most facilitation events or processes. In addition to building the capacity of the facilitator – a necessary first step for action research teams without much facilitation experience – these steps include the following:

1. Clarify the objectives of the facilitated process or event.
2. Agree on the facilitation methodology and tools that will be used during the event or process.
3. Agree on and communicate the objectives of the event or process, and continuously reflect on these as decisions are made and actions are taken.
4. Facilitate dialogue and debate (deliberative process).
5. Assist in summarizing emerging consensus and points of difference.
6. Facilitate the collective development of a pathway for achieving objectives and reconciling or accommodating differences.
7. Assess consensus and buy-in of different actors to decisions being made.
8. Document the process, outcomes (decisions made, plans) and lessons learned.
9. Assist in providing monitoring and follow-up to agreements.

Core Processes and Tools

Good facilitators are familiar with a set of processes and tools that they can draw on to assist a group of stakeholders to realize their objectives. These are drawn upon opportunistically, based on the specific needs at hand. We consider three tools to be useful at all stages of a PAR process ("cross-cutting"), and therefore present them in detail here. They include communication, visualization, and the use of codes.

i) Communication

It is essential that a facilitator have good communication skills. These may be broken down into the skills of listening, speaking and, questioning.

Listening

When facilitating in an interactive situation where different ideas are exchanged among members of the group, listening skills are of paramount importance; as one has to absorb ideas from the group and build on them in order to find a solution to the issue under discussion. Here are some ideas to improve listening skills while facilitating:

- Be attentive.
- Observe the group members quietly.
- Avoid interrupting others when they are speaking.
- Show interest by leaning slightly forward when someone is communicating.
- Ensure equal attention is given to participants from other gender, ethnic, or language groups with whom you may be less comfortable communicating.

Listening often requires identifying diverse viewpoints, and finding points of commonality or points of divergence between them, as well as finding ways to manage these differences. Listening is therefore also an analytical process, requiring the ability to draw out relationships among, and to actively process, ideas.

Speaking

A facilitator must be a good speaker. This means that the facilitator must be able to communicate clearly to

Box 5. Guidelines for improving speaking skills (E. Chuma)

- Speak clearly so that everyone can understand you.
- Speak in short, concise sentences but give enough information to the group.
- Report your ideas objectively and accurately.
- Be direct, honest, and straightforward in your communication.
- Vary the tone of your voice.
- Use simple language.
- Speak with confidence.
- Show a high level of enthusiasm.
- When speaking, communicate with the group's needs in mind.
- Share speaking time without dominating.
- Get to the point quickly.
- Establish eye contact regularly.

the group so that all group members can understand him or her. Box 5 summarizes a set of guidelines for enhancing a facilitator's speaking skills.

Questioning

Questioning is used to get information and feedback from participants. Probing consists of follow-up questions to get complete information about an issue. This arouses the awareness of those with whom you are sharing. We ask questions to search for more information, to find new ways for participants to solve their problems, and to generate new insights. Questions can

- Lead to questioning or rebellion, raising issues that are below the surface (*Why do I always have to pay for...?*).
- Open up new options to be explored, leading to different ways of doing things (*Is this the only way to plant maize?*) or to unexpected solutions.
- Change someone's entire life by encouraging hidden powers and stifled dreams.
- Be a powerful tool in helping to resolve problems.

- Lead to transformation of culture and institutions (by asking questions not normally asked).
- Be a powerful tool for social and personal change.

Strategic questioning should do the following:
- Create options *(What are the alternatives?)*
- Create solutions *(What are you going to do about...?)*
- Dig deeper *(How did you achieve this?)*

It is also important to recognize the difference between open and closed questions, and the relative strengths and weaknesses of each. Closed questions can only be answered with a "YES" or a "NO," and are limited in their ability to encourage deeper reflection. Open questions are more powerful, and have six helpers: What? Why? Which? How? Where? and When? Yet, there is a danger with "why." The question "Why are you doing this?" may not be a good question, especially at an early stage of facilitation, as it may force the respondent to answer defensively and to shut down. The person asked may also think that he or she is doing something wrong, as the question may be misconstrued to be an accusation. Such a question could, for example, be rephrased in this way: "What are the reasons for doing that?"

ii) Visualization

Visualization helps groups to better understand and internalize a concept or idea. It consists of making ideas visible through illustration of the topic under discussion. Visualizing a communication implies a written rather than oral communication, and clarifies the idea through the use of drawings, pictures, or diagrams (e.g. pie chart, line graph). This is key to any facilitation and makes communication more effective (Figure 4). Visualization ensures that contributions are fully taken into consideration and are not lost. Visualization can also help to structure debates and record activities for future reference, saving time and distilling concepts in people's minds.

Figure 4. *Visualization tool: A landscape with and without a natural resource governance sytem (Photo: L. German)*

- A common centre of attention is created.
- Contributions are not lost or forgotten.
- It is an appropriate tool where illiteracy rates are high.
- Difficult and theoretical contributions become easier to understand with the help of visual aids and concentration on main points.
- The danger of misinterpretations is reduced.
- The stage of discussion is clear at all times which allows participants to follow the discussion.
- With good visualization, people who join later can easily follow the discussion.
- Problems are easier to analyze, and hence solutions are easier to recognize.
- Ownership of the solutions by the participants is improved.
- Personal and emotionally biased contributions are dealt with, allowing the discussions to remain focused and objective.

Some of the key advantages of visualization of topics, problems, opinions, and individual proposals include these:

- Help participants to visualize a subject by creating a visual representation of it.
- Encourage participants to discuss the subject matter by writing or drawing their opinions, ideas, and proposals on cards.
- Support participants to put cards of different sizes and colours up on pin-boards and group them thematically.
- Once satisfied with the categorization, work with participants to see that the cards are glued to the board.
- Use flip charts and other visual aids to enhance discussions and foster knowledge sharing among participants from time to time.

iii) Codes

A code is a concrete presentation of a familiar problem, about which the group present has strong feelings (Hope and Timmel 1984:55). A code can be a poster, game, proverb, role play, story, cartoon, song or poem. A code represents a concept or set of ideas. Ask participants to analyze the code helps to develop mutual understanding among participants about an abstract situation. By asking participants if they have personal experiences that relate to this situation or by referring back to specific issues under discussion, the facilitator can use codes to bring about shared understanding or to tactfully explore sensitive topics. Codes are important for problem solving, provided they are adapted to the literacy level of the participants and are concrete and familiar – and thus help to raise relevant questions.

What to consider in the preparation of a code

1. Select a code that is simple, clear, and visible (show a familiar scene).
2. A code should deal with a theme that the community has strong feelings about (focus on one theme).
3. A code should stimulate interest and touch the hearts of people.
4. Decide beforehand the process for presenting the code.

The process of decoding codes is essential if they are to be of value for the beneficiaries. The facilitator has to relate the code to the beneficiaries' real-life situation in order to make the code understandable. During decoding sessions, the following questions can encourage the beneficiaries or community members to engage in analyzing the underlying issues:

• What do / did you see?
• What happens / happened?
• Why does / did it happen?
• How does this relate to your experience?
• What can we learn from the code?

For an example of how a code is applied, see Box 6.

> **Box 6. Example of a code: The River Code (E. Chuma)**
> The River Code is a role play that illustrates the concept of self-reliance. The facilitator explains that two people wanted to cross a river that was very full, and were unable to do so. Suddenly, a stranger offered to help them. He managed to carry the first person on his back to an island in the river and became very tired in the process. Because he could not carry the second person on his back, he guided him by holding his hand up to the island. The first one wanted to be carried again, but the stranger indicated that his back was aching, and that he could only manage to help them cross the river through guidance. The second one accepted to be guided, and this time he managed to cross the river by simply copying the actions of the stranger − this time without being held by the hand. After the two had crossed, the one on the island wanted the stranger to get into the water again to fetch him. The stranger and the second person waved their hands, indicating that he should cross in the manner that the yhad done, but he still wanted to be carried. So, they left him there to drown.
>
> To decode the role play, the facilitator asks participants a series of questions:
>
> Q. What did you see happening?
> A. Two men trying to cross the river. They crossed in different ways.
> Q. What does the river represent for people?
> A. Their problems and challenges.
> Q. What happened to the first one?
> A. The man who came carried the first one on his back and left him on the island.
> Q. What happened to the second one?
> A. The man who came assisted the second one to cross the river.
> Q. Who reached the other bank and why?
> A. The second one. He gained confidence in his abilities.
> Q. What does this symbolize?
> A. It demonstrates the need to show people how to do something rather than doing it for them. The first and the second men could be farmers and the third man who came could be a development worker/facilitator- who enhances the farmer's capacity, not by doing things for him, but by showing him how to do it for himself.
> The lesson that may be learned from the River Code is "Don't give people a fish, but teach them how to fish."
> The River Code indicates the importance of joint learning and self-reliance.

How to Decode in Six Steps

The following basic steps are used when leading participants through a process of decoding:

1. Description of the code: Participants are helped to describe the code by answering the question "what can you / did you see happening?" The facilitator provides time for discussion and presentation of divergent views, and finally concludes by describing what participants should have seen.
2. First analysis: Participants try to give their interpretation of what happened by answering the question "Why this did happen / why is it happening like this?" Again, after discussion, the facilitator concludes.
3. Real life: The code is now related to the real-life experiences of participants. A discussion is led by questions like "Does this happen in our real life?" or "Could you give an example of how this occurs in real life?" or "How does this relate to your own personal experience?"
4. Underlying or related problems: The underlying problem(s) is/are next identified as participants answer the question, "What is the problem this situation is depicting?"
5. Identification of root causes of the problem: To reach the root causes of the problem, the facilitator repeatedly asks the question "Why does this occur?" until there are no further answers.
6. Action planning: Here, actions to address the problem are identified and responsibilities agreed upon.

Building Facilitation Skills

"Nature" and "nurture" both contribute to building a good facilitator, who often has a healthy dose of both natural talent and formal training and experience. As facilitation is much more of an art than a science, it is difficult to build facilitation skills through conventional learning techniques alone (see Box 7). More often, it is likely to require a combination of some of the following approaches:

1. Formal training: Formal training in facilitation should be done in a participatory manner. This includes activities such as role plays and practical sessions that give hands-on experience.
2. Field demonstration: In this case, the trainer demonstrates in the field how to do the facilitation, illustrating how diverse techniques are employed and encouraging active observation by trainees.
3. Field practice with backstopping: Following demonstration, trainees go to the field and facilitate for themselves in a "learning by doing" mode, with backstopping and support from the trainer and wider group of trainees.
4. Look-and-learn tours: Exposure to diverse facilitation challenges, styles, and settings can help to build a broader understanding of what it takes to be an effective facilitator.
5. Peer- and self-learning: Reading manuals and facilitation guides can help build skills, as can a process of peer- and self-learning embedded into each of the above activities.

Just how much formal training or experience is required before a facilitator should initiate a PAR process?

Box 7. Developing facilitation competencies in Limpopo Province, South Africa (E. Chuma)

Facilitation competence development is an iterative learning process, which cannot be dealt with through "conventional training." In South Africa's Limpopo Province, the process was organized in a series of five learning workshops spread over a period of 18 months. Each workshop was followed by a period of two to four months of field practice, where the trainees implemented in selected villages what they had learned. The integration of learning workshops and field practice ensured that while the extension officers underwent their learning process, the community where the practice was conducted also underwent its own learning processes.

The focus of the learning workshops was on developing key competencies, such as visioning, articulation of core values for oneself and for community development, facilitation skills, technical training and other methodologies. The first workshop, being an orientation workshop, formed the basis for initiating and facilitating change, and introduced the basic concept of change and other development-related concepts. This was the longest, and placed emphasis on laying a good foundation for sharing and feedback, which is crucial for the entire competence development process. In the subsequent workshops, the focus was on reflection (at individual and group levels) and sharing with others. The focus was on successes and challenges faced in the field, and on developing strategies for dealing with challenges. This approach enabled a continuous monitoring and evaluation process to take place. The workshops also focused on deepening some concepts that were introduced in the previous workshops, while introducing new ones based on the different phases of the facilitation process. The fifth and final workshop focused on the overall evaluation of the process. While the intensity of the workshops differed from one to another, they all focused on the four broad aspects of competence development: visioning, personal development, facilitation skills, and technical and methodological training.

Given the way in which contemporary institutions are broken down, one often finds facilitation skills residing in some organizations (e.g. non-governmental organizations) and conceptual or theoretical knowledge of the system residing more with others (e.g. researchers). These two skill sets are both fundamental for facilitating a meaningful PAR process, and ultimately need to be combined in a single person to enable good facilitation to occur. The acquisition of new skills uncommon to one's own discipline or institutional orientation can best happen through the above steps. It is important to recognize that if a person initiates change before being sufficiently prepared, a PAR process can be steered in a direction that is unlikely to bring meaningful change, creating frustrations along the way among community members and other participants. For a discussion of facilitation challenges faced under diverse circumstances, see Colfer and al. (2009). Such early frustrations can undermine motivation and trust, and create problems further down the road. It is therefore important to make sure a basic set of skills is there before initiating change.

Learning Assessment:

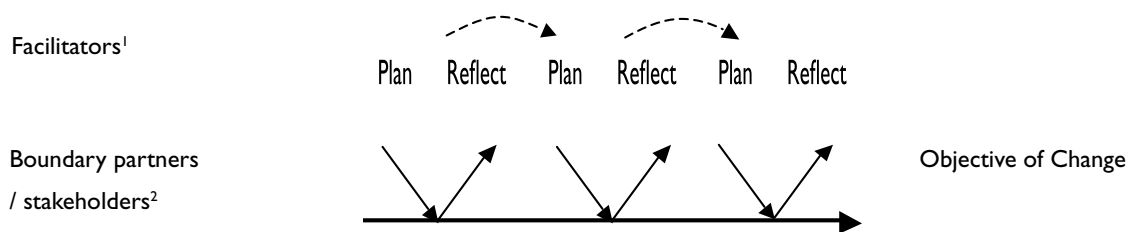The following questions are designed to help facilitators to evaluate their progress:

1. After reading this section, what new insights have you gained about facilitation and how to make it most effective?
2. Refer to the section on Facilitation Steps, on page 18. How did you carry out these different steps? Which steps were most and least effective, and why?
3. Reflect on the most recent event facilitated by you or a team member, or to a series of facilitated events aiming at addressing a common problem. For which of the aforementioned facilitation principles did the facilitators perform very well? For which was the team's performance poor, and how can it be improved upon in facilitated events in the future?
4. Reflect on the tools used. Which facilitation tools did you find most useful, and why? What challenges did you face in using these tools, how did you overcome these challenges, and what did you learn in the process?

5.1.2. Process Documentation

While facilitation is the foundation of the change or adaptation process, other tools are required to make systematic observations of change as it occurs. The immediate purpose of such tools is for learning rather than for change; however, lessons learned become critical inputs into the design of the change process. In this regard, lessons derived from failures are equally important to or more important than those derived from successes – as they are essential for making improvements in the ongoing change process. Participatory monitoring and evaluation (PM&E), which will be discussed later, is one such tool that helps to capture systematic observations from the participants or beneficiaries themselves. To improve upon facilitation approaches as well as deriving lessons for a wider audience from location-specific experiences, additional tools are required. One tool, called process documentation (PD), is designed to ensure that action researchers (observers and/ or facilitators of a change process) are also reflecting on the approach used to facilitate change and how the facilitation process itself influences outcomes at each stage of a change process. Process documentation may be defined as a process of group reflection, analysis and recording approaches used and their outcomes. We advocate its use by research and development teams involved in facilitating change, to enable them to learn lessons and make improvements in the facilitation approach used. Systematically observing and documenting change processes helps both to facilitate learning of lessons ("research") and adjustment of the facilitation process itself ("action" or "change").

Process documentation is carried out at each step of the change process when the research and development team interacts with boundary partners[14] (farmers, district stakeholders, etc.) – often in a facilitation role (Figure 5). It is used to plan for the activity, to observe the activity during its implementation, and to reflect on and evaluate the facilitation approach and its outcomes. By documenting sequential steps in facilitation and the outcomes achieved through facilitation, process documentation provides a record of different stages in a change process - what was done by the facilitators, how it was done, what outcomes were achieved, and the strengths and weaknesses of the approach in helping to get closer to the end goal. Process documentation is not a tool for documenting everyday decisions related to project management; other tools, such as proceedings or taking of minutes, are required for this purpose.

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14 *Boundary partners may be defined as "those individuals, groups and organizations with whom the program interacts directly and with whom the program anticipates opportunities for influence" (Earl et al. 2001).*

Facilitators[1]

Plan   Reflect   Plan   Reflect   Plan   Reflect

Boundary partners
/ stakeholders[2]

Objective of Change

[1] *Process documentation is carried out by the facilitators, enabling them to plan the facilitation process, to observe each stake-holder interaction, and subsequently to reflect on the interaction and draw lessons from it.*

[2] *The thick dark line represents the change process, which is often initially driven by external facilitators (the Research and development team), but ideally is ultimately led by the boundary partners or stakeholders themselves.*

Figure 5. *Illustration of process documentation by facilitation team*

Process documentation has many purposes, including the following:

- To enable reflection on and documentation of an event or action;
- To describe the process, or sequence of steps, used;
- To facilitate the evaluation of an event or process;
- To evaluate and fine-tune tools used;
- To keep a record of different steps in a change process;
- To distill lessons and store knowledge on these lessons;
- To integrate knowledge acquired into the facilitation process or way forward;
- To use this iterative process of methodology development, testing and improvement to enable the refinement and dissemination of methodologies "that work" (one of the major outputs of action research);
- To facilitate social learning within a team through the sharing of experiences, observations, and collective analysis of a facilitation or change process;
- To sharpen awareness and deepen analysis of social change;
- To strengthen the research component of PAR by documenting the "how" and the immediate results of the "how" from the viewpoint of the facilitators or action research team; and
- To assist in communicating outcomes associated with different types of facilitation or change processes.

While one could argue that participatory PM&E is sufficient for capturing this information, having action researchers independently observe the change process is useful for several reasons. First, additional information may be captured that may not have been observed or communicated by participants. It is common, for example, that local residents will not observe how the approach is affecting other social groups and will not comment openly on socially or politically sensitive issues. Yet, these observations may be important for improving upon the facilitation process, as well as for generating lessons for broader sharing. Secondly, the action researcher is always observing approaches in the light of broader research questions and lessons to be shared with a wider audience – thus shifting the focus of what is observed (beyond solving the problem at hand to include generalizable lessons). Thirdly, while both PM&E and process documentation help to monitor outcomes of different steps or aspects of an approach, the latter helps to document more systematically "how" each step was carried out, so that these intermediate outcomes can later be interpreted in the context of what was done and achieved. In this regard, the multiple PD reports generated at each stage of an evolutionary change process serve as a running record of what was done, why it was done, how, and with what results. Process documentation may be used by research teams or by development partners who may be excellent observers of process but lack documentation skills or the mandate for systematic learning.

The process documentation tool is summarized in Box 8. For an example of a process documentation output, see Annex I. These succinctly described steps obscure the fact that process documentation is an art as much as a science, and that a simple "recipe" of steps is insufficient for mastering the technique.

> **Box 8. Process documentation guide (German and al. 2007)**
>
> **Overview:** This tool is designed to facilitate systematic learning on development or change processes as they are implemented. It emphasizes documentation of process (the "how") during the planning of each development intervention or innovation, during implementation (how the plan changed during implementation, successes and challenges, lessons learned) and prior to subsequent actions (replanning to overcome barriers, better align actions with objectives) at project or program level. Step I (below) is used prior to any action or intervention, and Steps II and III for reflection and replanning following each action or intervention. By reflecting back on each action or intervention, the facilitator generates a running record of what was done at each stage of a development or change process and the outcomes associated with that step. It helps to reconstruct key moments when successes were achieved or bottlenecks overcome, and trace these back to the approach used.
>
> **Step I: PRIOR TO ANY ACTIVITY / STEP** (during planning):
> - Objective: What are you trying to achieve, overall, and during this particular step in the process?
> - Approach: What will you do to achieve the objective? What steps will you take and why? Who will be involved at each step, and why?
> - Aspects of Process Monitoring: What is going to be observed, monitored, and documented as you go? What indicators will be used to assess progress?
>
> **Step II: FOLLOWING ANY ACTIVITY / STEP:**
> - Approach: What did you actually do to achieve the objective? Was the approach modified in practice? If so, how and why?
> - Successes: What went well, and why?
> - Challenges: What did not go well? What were the stumbling blocks, and why did they occur?
> - Findings: What did you learn by carrying out this activity that you did not know before?
> - Resolutions: What decisions were taken by participants?
> - Lessons: What lessons or insights can you derive from these experiences to share with others trying to address similar challenges? What were you surprised to find out from the participants? What were you surprised to find out about the approach itself?
>
> **Step III: PRIOR TO ANY FURTHER ACTIVITIES / STEPS:**
> - Recommendations: What will you do the same and differently next time? What can be done to overcome the challenges encountered during implementation?

Before going to the field, Step I should be filled out by the team. During the event itself, team roles should be assigned. These include:

1. Facilitation (if the action researchers are the same people as the facilitators);
2. Process documentation (recording the content of the dialogue; essentially, taking minutes);
3. Process documentation (recording observations about the process itself (e.g. observing social dynamics within the group, as well as reactions when the facilitator uses certain language or a certain approach).

In practical process documentation, it is very important to call together the group of people who were involved in the event or process, to strengthen the analysis by bringing diverse perspectives to the table. Flip charts or PowerPoint projectors should be used to display the product as the discussion is carried out, to enable collective scrutiny of how observations are being recorded. The conversation should guide the process documentation, rather than vice versa. In other words, while the process is initiated from the top, the process documentation guide is not filled out in a linear fashion, but opportunistically, following the group's train of thought and through uninterrupted dialogue. By maintaining the train of thought, one person's observations will cause others to reflect on new issues, thus bringing up deeper and a wider variety of observations than those that would have been captured individually. Keeping the dialogue going through active facilitation while also systematically documenting what is being said, using the above format, may require separating the facilitation and documentation roles. It also requires the rapporteur to jump from section to section when filling out the guide (for example, from "successes" to "findings" to "lessons", and back to "successes" again only when the current train of thought has trailed out). Each observation made by a team member may be documented in more than one place. For example, an observation about a success may also be recorded as a lesson, but written in a slightly different way.

Understanding the core principles of process documentation can, together with the process documentation guide, help in directing the learning process and in evaluating team performance. These principles include

- Regular and immediate documentation of all processes;
- Rigour in analysis documentation;
- Ease of understanding by others;
- Focus on the positives and negatives of process;
- Adjustment of process, based on lessons;
- Shared and clear lines of responsibility;
- Focus on content of discussions as well as process;
- Relevance and ease of use (guidelines specifying minimum content required, so that content is harmonized in different process documents);
- Adaptation of documentation tools to diverse stakeholders' priorities;
- Sharing, transparency, and shared ownership of information collected; and
- Analytical capacity (more of a critical element than a principle).

Learning Assessment.
The following questions are designed to help you evaluate your progress on process documentation:
1. How have you documented your activities in the past, and what added value can process documentation have in your work?
2. How has the facilitation or action research team reflected on and documented community and stakeholder engagements? Which aspects of the process documentation tool were most useful, and why? What challenges were faced, and what lessons were learned?
3. What did you learn through group reflection and documentation that you might not have learned if done individually? What reflections were made through the process of documentation that had not been made when simply observing the process?
4. What else can be done to make process documentation more effective in fostering team learning and creating a record of steps in the change process, their immediate results and the lessons emerging from them? What other documentation tools could complement process documentation?

5.2. The Participatory Action Research Process

This section of the guide presents the various steps in the participatory action research (PAR) process, as follows:

1. Getting started, including
   – Team-building
   – Partnership
   – Mobilization

2. Understanding the starting points and aims, including:
   – Diagnosis and baselines
   – Conceptualizing change

3. Planning, including:
   – Participatory action planning
   – Action research planning

4. Managing change, including:
   – Supporting the implementation of planned actions
   – Monitoring, evaluation, and adjustment

5. Empirical research inputs to PAR, including:
   – Deeper analysis of the system
   – Impact assessment

Some of these steps are carried out by the facilitators or action research team, and others by the community (often with facilitation). These steps follow a logical sequence over time, and have functional linkages among them. Figure 6 illustrates the different steps and how they fit together over time, as well as the main nexus where each takes place – whether among the intended beneficiaries (e.g. communities) or among the action research team.
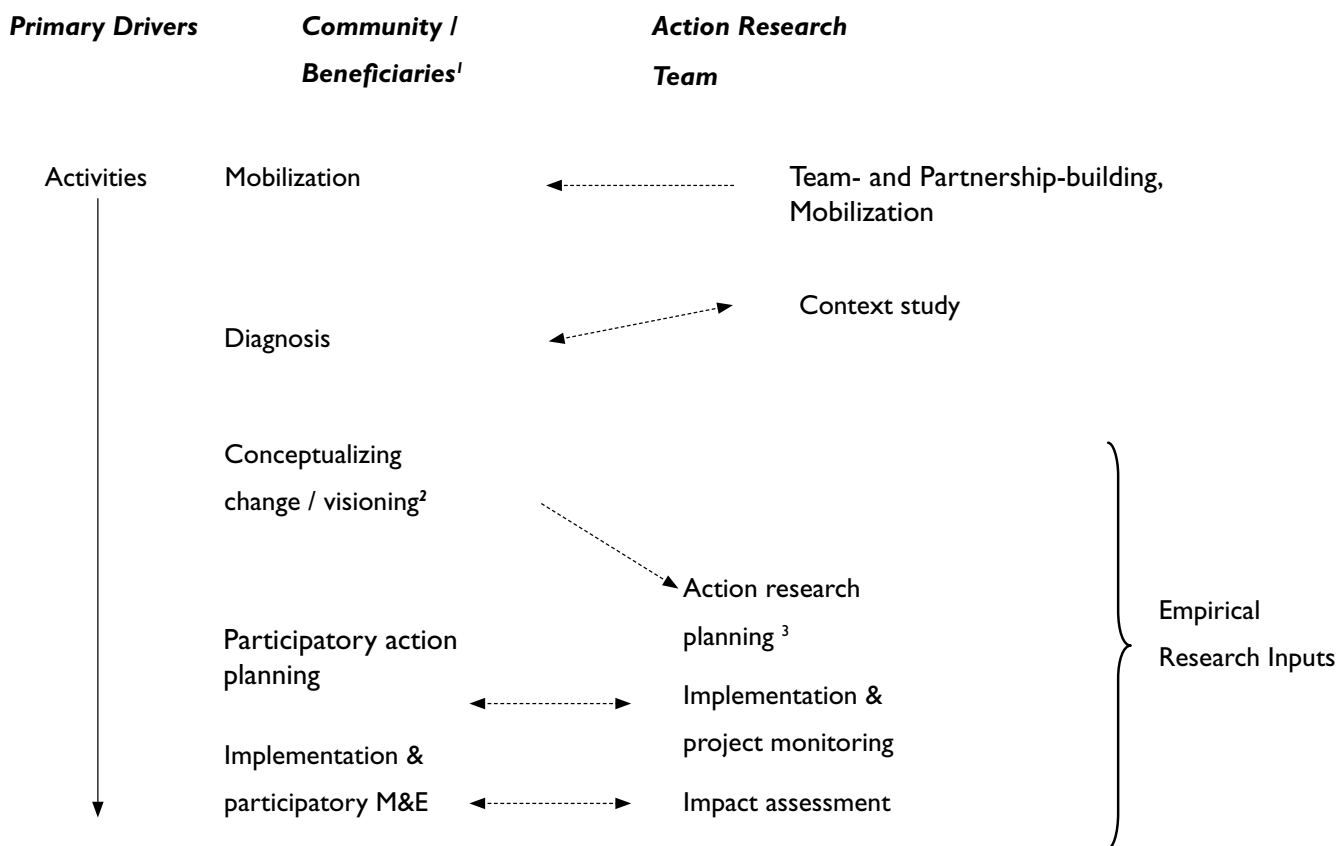
Primary Drivers	*Community / Beneficiaries[1]*	*Action Research Team*
Activities	Mobilization	← - - - - - - - Team- and Partnership-building, Mobilization
	Diagnosis	Context study
	Conceptualizing change / visioning[2]	Action research planning [3]
	Participatory action planning	Implementation & project monitoring
	Implementation & participatory M&E	Impact assessment

Empirical Research Inputs

Figure 6. *Visualization of key steps in the process of understanding starting points and aims*

1 These steps generally occur with external facilitation. Dotted lines suggest information flow between actors.
2 This step includes identification of local indicators and baselines for these.
3 This step includes identification of project-based indicators, and plans for establishing baselines.

The preliminary steps of team-building, partnership-building, and mobilization are largely done by the project team to establish the necessary conditions for effective project implementation. These steps consist of establishing rapport among various actors; reaching common objectives; creating the necessary linkages with individuals, groups, or institutions that have roles to play in enabling change; calling together intended beneficiaries and other partners to initiate dialogue; and verifying that diverse sets of stakeholders are interested in participating. Community members often have a role in mobilization, given their social networks within the community, leadership roles, or ability to mobilize individuals.

The context study consists of broad, exploratory research aimed at characterizing the system or site and identifying potential issues or problems to be addressed. This is an important step for the facilitators and the broader action research team because it gives a basic understanding of the system that ensures an informed facilitation process. It is generally led by the action research team (together with other researchers who may have specific skills in diagnosing particular aspects of the system), but involves the intended beneficiaries both to gain local perspectives on the context and to support researchers in gathering empirical data. The latter could include biophysical data or information about social networks and power relations, which may be essential for ensuring, for example, that the facilitation process does not create or exacerbate social conflict. The involvement of the ultimate beneficiaries is also necessary to minimize suspicion of what the research team is doing in their community and to help generate mutual trust. In cases where communities become very involved in carrying out context studies. Involving beneficiaries can provide an important opportunity for sharing knowledge and experience among themselves and discussing common problems and solutions. The findings from context studies are fed back to the wider community as a means of sharing and validating them, and as an input into the participatory diagnosis.

The participatory diagnosis helps to identify the main problem, as perceived by the communities or beneficiaries, as well as its causes and consequences. Often, during the same meeting or in a series of back-to-back meetings, the facilitator enables the community to assess how to move from problem to solution through a process of conceptualizing change. Reaching a common understanding of the problems' causes and consequences is an important step before entering the visioning process, which will build a common agreement on what the group would like to achieve. On the other hand, some facilitators prefer conducting visioning before the diagnosis; in that case, they start with a general vision of ideal conditions and, instead of addressing problems as such, discuss obstacles to achieving the vision. The diagnosis is then used to further focus the vision of the group (i.e. what the group would like to achieve). The diagnosis often includes a discussion of what should be done to overcome obstacles and therefore provides an introduction to action planning. Participatory diagnosis initiates the participatory monitoring and evaluation process, because it includes the definition of local criteria and indicators that will help to assess the effectiveness of the change process. "Baselines," or the current status of these local indicators (e.g. if the indicator is "yield per hectare" of crop X, we would identify current yield), are identified immediately after the visioning process. Part of the participatory diagnosis should be the identification of differentiated groups within communities that have different interests or "stakes" in the change process. This identification will be required to ensure the effective representation of their views and interests throughout the change process. This step should be done after the baseline study and before planning is finalized, as it is important to understand the focus of the change process (specific concerns or aims) in order to identify groups with different concerns or interests, relative to these issues.

Planning follows immediately after the process of conceptualizing change. This planning takes place at two levels: at the community level (through participatory action planning) and at the project level (action research planning). Planning at the level of the action research team takes place in a number of stages, sequenced iteratively with the local planning process. At this time, the action research team develops an action research plan that specifies the rationale for action research, research questions and hypotheses, proposed research outputs and outcomes, and a tentative facilitation plan. It will often be necessary for the project team to identify a complementary set of indicators to be monitored. Reasons for this are several. The first is a need to communicate to a broader audience the impacts of a PAR intervention or innovation in a credible language (e.g. scientific findings). The second is that certain phenomena perceived by the research team as essential for problem-solving may not be adequately captured through local indicators. This could be due to a tendency of communities to focus on the consequences of the problem and the immediate effects on their livelihoods rather than on the ultimate cause, thus restricting the scope of their indicators to the actions required to solve the problem. It could also be due to a different perspective on what the problem is, by researchers and communities (due, for example, to project mandate or disciplinary expertise), and the desire to demonstrate other linkages between actions and outcomes (Box 9).[15]

Box 9. The importance of project-based indicators: The case of the Algerian steppe (A. Daoudi)

The objective of project being funded in Algeria by the International Development Research Centre is to enhance the sustainable management of rangeland in the steppe. From the project conceptualization phase, the project team had emphasized the problem as being that of rangeland degradation. Once the project was funded and the team engaged the community in a participatory diagnostic study, the team discovered that the community conceptualized the problem differently. Their emphasis was placed strongly on the livelihood consequences of this degradation rather than the degradation itself, and on fixing the symptoms (e.g. reversing declining income) rather than the ultimate cause (pasture degradation).

During the context analysis, the researchers had identified two ultimate causes: the negative effects of tillage on the indigenous vegetation that stabilizes soil, and overgrazing. They viewed the solution as one of addressing the ultimate causes – namely, (i) zero till farming; and (ii) regulation of stocking densities. The communities, however, insisted that the problem was more immediate: declining income and poverty. Hence, they accepted to carry out actions proposed by the researchers only if other activities were carried out to raise income (e.g. diversification of the agricultural system), thereby focusing their monitoring on livelihood indicators. By monitoring additional variables related to tillage and rangeland productivity, the researchers are able to monitor the consequence of each set of actions (system diversification, rangeland rehabilitation) on the ultimate cause and how this, in turn, influences the problem of concern to the community (income generation). While in this case the inclusion of exogenous variables helped to raise awareness of the importance of working on both the ultimate cause and the consequence. Scientific knowledge and perspectives are often themselves deficient (Fairhead and Leach 1996; German 2010), requiring a large dose of humility in interpreting coupled human-ecological systems.

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15 *For example, to generate the interest of communities in expanding their actions to influence a broader set of causal processes, or as a means to illustrate the relationship between local action plans and their indirect effects.*

The next step is participatory action planning, which enables local stakeholders to operationalize their visions through an implementation plan – including what will be done, how it will be done, by whom, and when. This step also establishes a plan for participatory monitoring of implementation and progress toward the agreed vision. Agreements are made on how the performance of indicators identified in the visioning process will be measured, how often, and by whom. At this time, the project team also shares its plans for project-based monitoring and provides a rationale for why it believes this monitoring to be important. The facilitator should encourage questions and discussion at this time in order to explore the complementarity between local and project-based monitoring efforts and the potential involvement of community members in the latter. Both community-based and project-based monitoring require some kind of baseline to provide a reference point against which progress may be assessed. If baselines have not yet been established, both communities and the research team will establish plans for gathering baseline data and taking periodic measurements or observations of identified indicators.

At this stage, the action research team utilizes the outputs of the participatory planning process to refine their action research plans, including the facilitation plans (so as to accommodate community priorities) and plans for project-based monitoring. At this time, the team agrees on how baseline data will be collected for those indicators that will be tracked through project-based monitoring. These baselines will be the basis upon which changes in these indicators (as a result of the PAR process or other contextual drivers) will be assessed at the end of the project. In cases where impact assessment is envisioned, the baseline must integrate specific indicators that can help to assess impact and consider the broader principles that must be followed for a rigorous assessment of impact (see section 5.2.5.2. on Impact Assessment for details).

Once participatory action plans and action research plans are finalized, the change process begins. This is by far the most challenging stage in the process, as well as the stage of the longest duration. Failure is just as easy as success, and the process therefore must be well-facilitated and closely monitored, to ensure that emerging challenges are captured early enough so that corrective change can be initiated and challenges do not lead to enduring failure. For this stage, both participatory monitoring and evaluation, to track progress of locally identified indicators, and project-based monitoring are essential. Empirical research contributions to the change process may be defined at any stage of the change process, based on how the process evolves and on information gaps that arise in the process for which answers are required to make a decision about appropriate actions. It is also utilized to carry out final impact assessments to determine which observed changes may be attributed to project actions and the PAR process.

Note that these steps are not always implemented in a fixed sequence, but may be applied strategically, based on the needs of the moment. These needs might emerge during implementation: for example, planning for activities likely to bring immediate benefits when communities begin to show fatigue from preparatory steps. The needs may also emerge from the objectives to which the organization or facilitator is accountable. For example, donors or professional standards may require rigorous baselines to enable subsequent generation of quantitative data on progress and impacts. Steps also run in parallel at times; for example, preliminary information for some baseline indicators can be gathered starting from the context study but complemented during subsequent steps. How elaborate each step is may also depend on the nature of the challenge being addressed or the availability of financial and human resources. Facilitators must therefore remain flexible in the sequencing of steps and the duration of each step. It is important to be as conscientious as possible when carrying out each step, but also flexible in responding to the needs of the moment. Importantly, the process of change itself – and the facilitation it requires – should be as uninterrupted as possible, irrespective of the "data needs" of team members or distant stakeholders. Thus, teams will often find themselves unable to finalize the planning process and the establishment of baselines prior to initiating change. While this situation may be uncomfortable for researchers used to keeping a healthy distance with the object of study (e.g. not influencing baseline variables), it is often necessitated by the dynamics of stakeholder engagement.

This tension raises another important point, which is the human resource needs to implement an effective PAR process. Managing an ongoing facilitation process for a complex aim such as reducing vulnerability to climate change, which will more often than not involve technical, social, and institutional innovations, requires both time and a diverse set of skills. Effective documentation of the change process, for which "process observations" will greatly benefit as a result of having multiple personal and disciplinary perspectives around the table, will also gain from meaningful time allocation by the facilitation team. Superimposing a layer of empirical research on the project to be able to support local change processes, substantiate claims to impact, and communicate

with a wider audience adds an additional layer of burden. The facilitation component is essential and should under no circumstances be subsumed to the latter two tasks, but depending on project aims, all tasks may be essential. Therefore, it will be important to assess financial and human resource commitments to PAR prior to mobilizing partners and communities. The approximate duration of each step is outlined in Table 2.

Table 2. Approximate duration of each of the steps in PAR

Step	Duration
Team-building	Ongoing
Partnership	Ongoing
Mobilization	Ongoing, but heaviest in the first one to two months of PAR.
Diagnosis and baselines	Should not take longer than two to three months; if the step takes longer than one month, entry points should be introduced to sustain community interest.
Conceptualizing change	A few meetings conducted over the course of one to two months initially; may be repeated as new challenges or findings accumulate
Participatory action planning	Two weeks (generally, one main planning event at each level of organization – community, district, etc. – complemented by a series of feedback and validation sessions).
Action research planning	One week (initial plan); second week one to two months later to update plan with information acquired from diagnosis and participatory planning.
Supporting implementation of planned actions	Varies widely, from a few months to many years, depending on the nature of the problem. All PAR projects should have less challenging aims that may be concluded within shorter time frames, so as to sustain stakeholder interest. It is important to plan in a way that at least some successes are achieved (and related actions come to a close) at least annually.
Monitoring, evaluation, and adjustment	Varies according to the nature of the problem, but in general it should be conducted at least quarterly until the problems are addressed or objectives achieved
Deeper analysis of the system	Conducted on an as-needed basis, and should only be carried out if it can be completed in a reasonable enough time to inform decision making
Impact assessment	Generally not more than one month; often ongoing

5.2.1. Getting Started

5.2.1.1. Team- and Partnership-Building

Key aims

Team-and partnership-building are essential to initiating change, as they set stronger foundations for all that follows. The basic objectives and requirements for team- and partnership-building are similar. The main purpose is to establish the conditions required to ensure the future success of the project, to put in place an effective team composed of individuals with complementary skills, and to establish a set of sensitized and committed partners. It is also useful for becoming more familiar with one another – key motivating factors, strengths, weaknesses, and complementarities – and to build rapport. This helps to highlight the interdependence of different team members or partners. Team- and partnership-building should not be seen as a one-off activity; rather, it is a continuous process that requires active management as the project evolves.

There is a distinction between building a team and building a partnership. They are two sets of activities involving different individuals or groups, although often using a similar set of approaches. An action research team is a core team made up of researchers and development practitioners. While they may share a set of overarching objectives related to the collaboration, their aims and responsibilities differ from those of institutional partners. The action research team is mutually responsible for the implementation of the PAR process and ultimately accountable for the outcomes and success of the project. The team's composition will reflect the main aim of the project: a balance between development practitioners and researchers with teamwork abilities who master a number of facilitation and analytical tools. A partnership, on the other hand, is an explicit agreement, written or not, that a team establishes with an individual, group, or organization to whom a role has been recognized in the implementation of the project. The process of partnership-building helps to define this role, as well as the conditions under which it will be implemented.

Subsequent steps of the PAR process will contribute to team-building and development of partnerships. Participatory action planning, for example, will help identify roles and responsibilities much more clearly, and monitoring and evaluation will help to improve the performance of teams and partnerships.

Core processes

Core activities or processes within team and partnership building include the following:

1. Engagement of individual team members and partners: The facilitator must take the lead in calling others to the table, clarifying the aims of the partnership and consulting them on their interest in being engaged, but not imposing his or her own interests or views. This helps to build trust, minimize suspicions by clarifying aims and clearing any doubts, and increases the chances that team members or partners will come to the table with a positive attitude.

2. Meetings and workshops, which are useful for:
   - Developing a common understanding of the background of team members (academic, working experience, level of knowledge of the PAR process, strengths and weaknesses) or partners (mandate, modes of working, what they can offer, and what they would like to achieve through the PAR process);
   - Ensuring that people are at the same level of understanding of PAR, by conducting refresher meetings with the team and at the community level;
   - Exploring differences in work style, which can help to transform points of misunderstanding into opportunities for building complementarities among diverse individuals (e.g. using personality tests);
   - Understanding the importance of working as a team, challenges that can be faced and approaches for dealing with challenges;
   - Agreeing on roles and responsibilities for team members and partners;
   - Holding brainstorming sessions on ways to facilitate change; and
   - Planning.

3. Regular feedback and reflection meetings to jointly evaluate progress, relative to what was planned, and distill lessons that can be used for moving forward.

4. Regular team and partner interactions, which may include:
   - Social gatherings and outings to build team rapport;
   - Joint activities in the field to build a common understanding of the PAR process as it unfolds.

See Boxes 10 and 11 for examples of successful team-building processes.

Box 10. Partnership-building in the Communal Areas Management Programme for Indigenous Resources (CAMP-FIRE) in Zimbabwe (N. Nemarundwe)

The CAMPFIRE program is a community-based natural resource management program initiated in Zimbabwe during the mid-1980s to facilitate long-term rural development through the management of natural resources by local communities. Management of forests and wildlife had historically been the mandate of state organizations, with little or no consultation with rural communities. CAMPFIRE aimed to facilitate active involvement of these communities in the management of natural resources in their locality. The initial focus was on the management of wildlife resources. This was facilitated by the Department of National Parks and Wildlife Management (DNPWLM). With the realization that management of common-pool natural resources requires a multi-disciplinary approach, various institutions came together to facilitate the implementation of the program. These included the Worldwide Fund for Nature (WWF), the Centre for Applied Social Sciences (CASS) at the University of Zimbabwe, a rural development non-governmental organization called Zimbabwe Trust (ZIMTRUST), the CAMPFIRE Association (CA), and the Ministry of Local Government, Rural and Urban Development (MLGRUD). Given this involvement of multi-institutions with different agendas and expectations, there was a need to ensure good coordination and strong partnerships among these organizations.

The first step was to identify the purpose of partnership-building activities, which was to create platforms for collaboration and to identify roles and responsibilities for each organization (to ensure that there were no overlaps in roles that could cause conflict among the implementing partners, and to identify areas of complementarity). The process of establishing partnerships involved these tasks:

1.   Holding start-up meetings and workshop where the goal and objectives of CAMPFIRE were clearly outlined and agreed upon.

2.   Defining roles and responsibilities of each organization, as follows:

DNPWLM – Ensure that statutory regulations relating to wildlife use are adhered to;

WWF   – Provide advice and assistance to rural communities on ecology and wildlife management, as well as economic and financial management;

CASS   – Carry out socio-economic research, policy and institutional analysis (baseline surveys, monitoring impacts on rural communities);

ZIMTRUST – Assist communities and rural district councils in strengthening their management skills and developing local institutions for wildlife management;

CA   – Lobby and provide advocacy on behalf of communities; and

MLGRUD   – Advise partners on local government policies and practices; audit and supervise district authorities involved in wildlife management.

3. Nominating an institution that would actively manage and coordinate programme activities (in this case, the CA).

4. Developing a strategy to facilitate continuous feedback among all partners, covering mechanisms such as seminars and policy roundtables to keep everyone up to date.

5. The feedback fora set the tone for a continuous process of adjusting roles and responsibilities as necessary, as well as bringing in new partners that are identified as relevant to addressing identified challenges.

Outcomes included a shared vision of what CAMPFIRE aimed to achieve and how the goal and objectives of the program would be achieved; clearly defined roles and responsibilities of each partner; fostered supportive working relationships among the partners; and encouraged complementary contributions from different areas of expertise, leading to CAMPFIRE being hailed internationally as a success.

Box 11. Partnership-building in the CoFCCA project, CAR/DRC (CoFCCA Team)

Since the Centre for International Forestry Research (CIFOR), as a research institute, does not have the expertise required to support the implementation of all the activities identified by beneficiary communities, certain technical responsibilities are entrusted to development partners. The first step is to draw up partnership agreements with the latter, through negotiations on the nature of their involvement with the project managers and with the aforementioned communities.

In the Ndima Nzaso Forest, Central African Republic (CAR), and in Mambasa and Kisangani in the Democratic Republic of Congo (DRC), negotiations entailed the following steps:

Step I

- Review of identified adaptation activities and strategies by community representatives;

- Selection of activities that can be carried out under the Congo Forest and Climate Change Adaptation (CoFCCA) project, considering criteria such as:

  - Short- or medium-term feasibility

  - Compliance with project goals and the CIFOR mission (clear link with forests, peoples, and adaptation to climate change)

  - Reasonable cost

  - Experimental nature

- Classification of identified activities into two categories: feasibility dependent on external aid, or not – the latter being planned without delay;

- For activities requiring external aid, identification of potential partners by community representatives.

Step II

- Explanatory visit to identified partners.

Step III

Exploratory workshop with all the partners: During this workshop, each partner selected activities to support and the type of assistance (e.g. provide equipment, expertise, funding, or proximate monitoring). The supporting partners came together to focus on given activities and decide on their scope (e.g. grow X number of hectares of cassava per village), the breakdown of roles (Who is to do what?), and responsibilities (Who is responsible for the success of what?), and to draw up an action plan (What? When? By whom? With whom? How?).

Step IV

Each partner worked out the terms of the partnership agreement with the CofCCA project. This meant that each partner had to define the partnership goals, intended activities, expected outputs and impacts for the beneficiaries, implementation schedule, roles and responsibilities of each party, and the related budget. The preliminary terms of the agreement were then amended by each of the parties until a consensus was reached.

5.2.1.2. Mobilization

After the initial stages of team-building, the next stage generally involves contacting the communities and other stakeholders. Often, there are protocols that should be followed when entering a community for the first time, such as contacting the local leadership to inform them of the aims of the project and to seek permission to engage with community members. A process of community and stakeholder mobilization should then be initiated. This is a process through which participants in a PAR process become interested and get self-organized and motivated to work together toward a common goal. It is also a process through which marginalized members of a community are tactfully consulted and engaged in the change process. It must be noted that subsequent steps of the PAR process will contribute to mobilization and the definition of this common goal.

Key aims

The primary aims of mobilization are:

*   To engage larger numbers of people in the change process;
*   To take stock of the variability and complexity of the society or set of stakeholders, and find ways to consult and meaningfully engage marginalized groups within communities;
*   To foster "local" ownership of the PAR process, which in turn enhances sustainability;
*   To mobilize local resources (knowledge and experience, labour, material or financial contributions) and sustain collective inputs;
*   To build trust; and
*   To share information.

For mobilization to be effective, it is important that there be transparency of aims, and equal opportunity for all stakeholders to participate and express their opinions. This does not mean that the entire community or all stakeholders must be present before starting to plan, but rather that all have been informed and given the opportunity. Mobilization often entails identification of local institutions or civil society actors who are respected by the community and considered effective in mobilizing the people, given their established track record and trust reposed in them by others. At the same time, it is important to ensure that politically, economically, or socially marginalized groups are not left out of the process, which often requires active attempts to identify and engage them during the mobilization process.

Core processes

The dynamic nature of the mobilization process, which must be responsive to local social norms and responses, makes it difficult to summarize into a series of steps. Common elements to the mobilization process, however, include the following:

*   Formal correspondence (often written) with administrative authorities in an area where the project

Learning Assessment:

The following questions are designed to help you evaluate your progress on "Getting Started":

1. Do team members and partners have a common understanding of the objectives of the collaboration, their roles and responsibilities, and the type of change process that will be the subject of PAR?
2. Has a broad cross-section of the community shown interest in being involved in the project? Is there a sense of enthusiasm and local ownership in the process?
3. Are there any gaps in terms of making partnership-building, team-building, and social mobilization more effective?
4. How can these be addressed?

wishes to operate, if outside organizations are new to the area, as a means to enhance buy-in, ensure the project's legitimacy or avoid future misunderstandings.
*   Informal visits to the area – including government authorities at diverse levels, organizations with current activities related to the topic, and people with knowledge of the area and previous interventions – to
    – Learn more about the history and context;
    – Identify any latent conflicts between different social groups, or regarding the topic;
    – Present the project to potential participants or supporters; and/or

- – Solicit advice on how best to enter local communities or engage certain stakeholder groups.
- Informal visits to communities to inform people of the project and mobilize different social groups to attend a first meeting, through a combination of visits with local leadership (traditional and government authorities) and informal visits with social groups that may not attend unless otherwise encouraged (e.g. youth, women, the very poor, marginalized ethnic groups).
- Community-wide or multi-stakeholder meeting to:
  - – Raise people's awareness of the project, its objectives, and expected approach;
  - – Solicit their permission, and interest to participate, and clarify what their roles might be;
  - – Mobilize their future inputs and involvement; and
  - – Inform them about the next steps, and solicit their advice and inputs.
- Introduction of the idea of village or stakeholder representatives, joint identification of the qualities and behaviours of good representatives, and agreement on the way in which these representatives would be selected (including use of established criteria) and monitored.
- Partnership-building

5.2.2. Understanding Starting Points and Aims

It is important to start the PAR process by grounding the process conceptually: Where are we starting from and where are we headed? Assessing where we are starting from can be done using three tools: the context study, the diagnosis, and the baseline study. Understanding where we are headed is done through facilitating stakeholders to conceptualize the change they would like to see. An important tool for this task is visioning.

5.2.2.1. Context Study

Key aims

The context study presents a picture of the system, including collection of information on the past and present state of interactions among stakeholders, actors, and their environment. This picture enables the orientation and adaptation of future management actions. It enables the external facilitator to get a better understanding of the complexity of the site or the system. It gives the internal facilitator an integrative view of all data and enables an improved understanding of the needs and problems to be solved. Equally important, by identifying existing conflicts or tense socio-political relations, it may play a key role in avoiding potentially volatile cultural and political stumbling blocks in the facilitation process.

Core processes

The methodology used for the context study will depend very much on the main objective of the PAR project. However, it involves identification and analysis of diverse parameters, including biophysical, socio-economic and political characteristics of the site or the system, with emphasis on aspects directly linked to the focus of the project.

The context study is extractive research, insofar as it is initiated and carried out by an external facilitator /researcher with the aim of having a better understanding of the situation of the site. Usually, traditional questionnaires, participatory mapping, and other standard data collection protocols are used. Secondary data collection and literature reviews should form part of the context study. However, this method proves limited vis-à-vis the complexity of the situation met in the field, and on its own does not give the facilitator adequate understanding with which to adapt to unpredictable and complex situations.

The context study is best carried out in an interactive way, using tools borrowed from participatory methods or a set of criteria and indicators (C&I) as an investigation framework. The participatory context study informs external facilitators about the complexity of the site and protects against avoidable errors due to ignorance of the local context. It also allows local actors to gain access to outsiders' knowledge and provides an opportunity for developing a shared understanding of local concerns and of issues and challenges affecting different groups. This approach also offers an opportunity for the less powerful actors to participate in the identification and analysis of their problems or concerns and in the definition of activities to be carried out, thus helping to stimulate local ownership of interventions.

No option is exclusive and it is ultimately a combination of several factors, including the knowledge of the site or system, means available, and priorities that determine the methods to adopt. Often, facilitators have difficulty in deciding the depth or level of detail of the study at this stage. The optimal level of accuracy is a matter of common sense and practice. Too much detail may make this phase time-consuming and inefficient, for most of the information collected is neither analyzed nor utilized in decision-making. In addition, it may be difficult to encourage some groups to go beyond very mundane issues to imagine a better future. At the end of this phase, the facilitator and the actors will together have already identified a set of potential problems to be addressed. It is important to sort out which of these issues fall within the line of the project and which ones will need to be tackled by partners.

5.2.2.2. Diagnosis

Key aims:

PAR is research-oriented toward solving problems, overcoming obstacles, or achieving a goal. The context study contributes significantly to the identification of the main issues to be solved or concerns to be managed. Yet, solving a problem means combating its causes. The identification and analysis of factors that generated the problem, or that contribute to sustaining it, becomes a fundamental step toward the resolution or mitigation of the problem. The participatory diagnosis can enable actors to identify the superficial and underlying, direct and indirect, proximate and remote causes of the identified problems (see Box 12). On the other hand, some approaches to diagnosis involve looking for alternative paths to reaching the goal (Mitroff 1997) or emphasize building on existing strengths in achieving collective goals (e.g. appreciative inquiry[16]) instead of focusing only on the perceived problems.

Box 12. Preliminary and participatory diagnostic in the Boeny Region, Madagascar (ACCA Madagascar team)

A participatory diagnostic was carried out in Boeny in 2008, using local reflection groups (LRG) composed of some 20 farmers, together with local authorities. The goal was to bring out farmers' perceptions of climate change, identify the impacts these changes have had on the agricultural system, identify strategies currently employed to reduce vulnerability to climate-related disturbances, and evaluate the effectiveness of these strategies. The 20-person LRG was divided into two groups by gender. A manual was provided to ensure that the discussion focused on pre-selected themes, with questions such as these: How do farmers perceive climate change? How are identified changes observed or affirmed? How do they measure the effects? What actions have been adopted in the past to reduce vulnerability to the effects of climate change? What were the results?

A report-back session enabled a comparison to be made between the information produced by the two groups and ensured a participatory process. The diagnostic showed that farmers clearly identify the following two major vagaries of climate:
- Progressively shorter rainy seasons, which since the 1970–1980 reference period have gradually declined from six to seven months to two to three months;
- Overall increase in temperature.

Changes in rainfall have led to serious changes in rice cultivation schedules and in crop yields. Although three cropping seasons are still possible in this part of northwestern Madagascar, with vary asara (rainfed rice cultivation, October to March), vary atriatry (rainfed rice cultivation with supplemental irrigation, February to July) and vary jeby (a flood-recession rice crop, February – June), ricefield productivity has declined by nearly 50%. Yet, in some irrigated areas, a fourth rice crop is grown – a fortunate outcome of the drop in rainfall.

Breaking down the results of this preliminary participatory diagnostic into social stakes and challenges inspired the construction of a collective vision.

The diagnosis or baseline constitutes an important step in PAR, in the sense that it enables the production and consolidation of basic knowledge of the issue being addressed, as well as its socio-economic, institutional, and ecological context. The diagnosis facilitates the achievement of the following objectives:

1. To characterize the specific aspects of the issue being addressed by the project, and to define the relevant project interventions. This characterization will enable the definition of the complexity of the problem and the identification of its key components, through which change can be better thought through.
2. To foster a common understanding of the issue and its causes, and to initiate the process of awareness-raising and mobilization of local actors.
3. To select priority communities or groups from the population that the project will target.

The identification of resource persons should also be included as one of the objectives of this step.

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[16] Appreciative inquiry is a way of asking questions and envisioning the future that fosters positive relationships and builds on the strengths of a person, a situation or an organization. For more information, see Cooperrider and Srivastva (1987), Hammond (1998), Watkins and Mohr (2001).

Core processes:

A good diagnosis is not easy to carry out, but it is crucial for the success of a project. Very often, the causes and the consequences are so closely intermingled that it is difficult to elucidate them. Actors are so entangled in their situation that they cannot easily solve problems on their own. Hence, facilitation by a third party can be instrumental. Facilitation of a participatory diagnosis requires both common sense and technical skills. There are several ways of doing diagnosis, and the choice should depend on the topic (e.g. climate change vulnerability). At the beginning of the process, it is important to identify an entry point as a way of marking the beginning of the discussion. This might include an analysis of historical events experienced as a result of climate change, or changes in resources and livelihoods due to climate change. Another possible entry point is the discussion of a (possibly idealistic) vision of the future and of how climate-related threats are obstacles to reaching that vision (see next section for details). If the resource and livelihood entry points have been selected, the steps in Table 3 can be followed.

Table 3. Example of steps in participatory diagnosis

Step	Tools
1. Discuss the different aspects of climate change observed	− Brainstorming − Historical trends analysis
2. Discuss the impact (direct or indirect) of current climate-related threats on resources, livelihood, and activities (the positive and negative impact of climate change) as well as possible impact of future climate change	− Brainstorming − Matrix (plotting climate change against activities and resources, to discuss how each of the identified aspects of climate change affects different activities or resources) − Problem tree − Historical trends analysis
3. For each considered type of climate-related threat, discuss the factors that make certain social groups more vulnerable than others or that increase the negative consequences	− Focus group discussion − Role plays − Analysis of local discourse, with feedback to the local communities
4. For each type of threat, discuss factors that help different social groups to cope	− Focus group discussion − Role plays − Analysis of local discourse, with feedback to local communities
5. How are the different groups responding to the different aspects of climate change observed?	− Brainstorming − Problem tree
6. Identify current and potential contributions of external actors in supporting local adaptative capacity and decreasing vulnerability	− Focus group discussions − Visioning

For an example of an output from a diagnostic study, see Box 13.

Box 13. Results of a diagnostic exercise by a men's group in Nkol Evodo Village, Cameroon (CoFCCA Team)

In Nkol Evodo, a village in the humid tropical forest zone of Cameroon, an IDRC-funded project (COFCCA) carried out a participatory diagnostic activity related to the impact of climate change. A village workshop was called, and after an introduction to the purpose of the activity, men and women were divided into two groups to capture their respective views on the main problems faced. Men's productive activities included commercial and subsistence agriculture, hunting, fishing, collection of non-timber forest products (NTFPs) – such as palm wine, rope, rattan, cassava leaves and fruits – and timber processing. Among these activities, three activities formed their main sources of livelihood: subsistence agriculture, NTFP harvesting, and commercial agriculture. The men emphasized the following aspects of climate change:

- Drought during the rainy season and too much rain during the dry season;
- Dry and cold wind, formerly lasting 12 days but now lasts two months, implying that the weather is now too cold and dry;
- Dry season now too hot;
- Crop invasion by certain pests and weeds; and
- Violent wind that causes trees and their flowers to fall, affecting the production of fruits.

The effects of climate change on men's activities were also identified using matrix ranking, as follows:

	Commercial Agriculture (Cacao)	Subsistence Agriculture	Wetland Agricluture	NTFPs	Animal Husbandry
Change in the season	2	3	3	1	3
Dry and cold wind	1	1	1	1	3
Increase in temperature	+	2	1	1	3
Invasion by pests and weeds	2	2	3	-	-
Violent wind	1	2	3	2	1

Key: 1 = Weak effect; 2 = Average effect; 3 = Very strong effect; + = Positive effect; − = not relevant.

Based on this diagnosis, the facilitator can help to lead a discussion on the way forward by asking how the positive impacts can be taken advantage of to improve livelihoods, how the very negative influences can be mitigated, or if there is need for shifts to alternative livelihood activities.

5.2.2.3. Conceptualizing Change

After characterizing climate change adaptation challenges and identifying possible interventions in a participatory manner (diagnosis), the team should have the requisite capacity to conceptualize change. This includes visioning and the definition of criteria and indicators that help to operationalize the vision by clarifying what concrete changes will be seen if the vision is achieved, even if only partially. This step enables collective definition of the project's general objectives, with regard to changes participants would like to see brought about through PAR. In the case of climate change, this step should clarify how "improved adaptive capacity" is conceptualized by local stakeholders. After identifying the criteria and indicators for tracking change, it is important to carry out a baseline study to assess the condition of local indicators at the beginning of the change process. If a qualitative approach to baselines is chosen and participants still have energy following the visioning process, baselines can be established in the same meeting as the visioning exercise (see the section on Baseline Studies for details). In some cases, the step of conceptualizing change can be done jointly with the diagnosis.

Key aims

1. The objectives of this step can be defined as follows:

2. To build consensus on the general orientation of change desired by all partners involved in the project;

3. To help develop a mutual understanding of alternative pathways through which the desired change can be achieved; and

4. To support group reflection on possible actions that can help in realizing targeted changes.

Core processes

Here, we will look at three tools: visioning, definition of "boundary partners" and the results chain.

(i) Visioning

In visioning, there is always a risk that visions that participants develop are too broad, long-term, or unrealistic and therefore are of little use in planning. The facilitator must therefore consistently frame questions to focus on the topic at hand – namely, what a future will look like if people have learned how to adapt to climate change. He or she can do this by making use of the output from the diagnostic phase to focus or narrow down the visioning exercise around key challenges or opportunities identified. Visioning also frequently requires explicit efforts to surface and aid in reconciling conflicts of interest, and often involves a lot of effort to negotiate different visions of the future by various stakeholders with divergent interests (see Box 14 for an example of how visioning has been used to resolve stakeholder conflicts). It can also help conflict to be avoided by facilitating the formulation of visions about the future in which complementarities or synergies among divergent sets of interests are identified. In this step, there is always the risk of ending up with a formula for change that is founded on a false consensus, obscuring points of difference that can ultimately undermine the project's success. Expert facilitation skills are therefore required to overcome this challenge.

> **Box 14. Conceptualizing change: Use of criteria and indicators to visualize an end to conflict (Tiani and Bonis Charancle 2007)**
>
> The Ngambe Tikar District in the Central Province of Cameroon has a population of about 12,000 people, made up of two native ethnic groups – the Tikar (population ~ 10,000) and the Bedjang Pygmy (~ 1,000) – as well as migrants from other areas of the country, including the Fulani pastoralists (also called Peulh Bororo). In the Tikar plain, violent conflicts have always erupted between the indigenous, sedentary Tikar and the nomadic Fulani over the destruction of crops by transhuman cattle. For years, the government has tried in vain to solve the conflict. A non-governmental organization named Innovative Resource Management (IRM) thought it would be more productive to empower local facilitators to manage the conflict by providing them with tools to assist their own communities in finding lasting solutions to the problem. The process was planned to be carried out in three steps:
>
> 1. Facilitation of a visioning exercise, followed by the identification of a set of criteria and indicators
> 2. (C&I) by each ethnic group;
> 3. Sharing of the two sets of C&I, so that each group could become aware of the other group's perceptions and priorities; and
> 4. Discussion around the points of convergence and divergence between the two groups, and identification
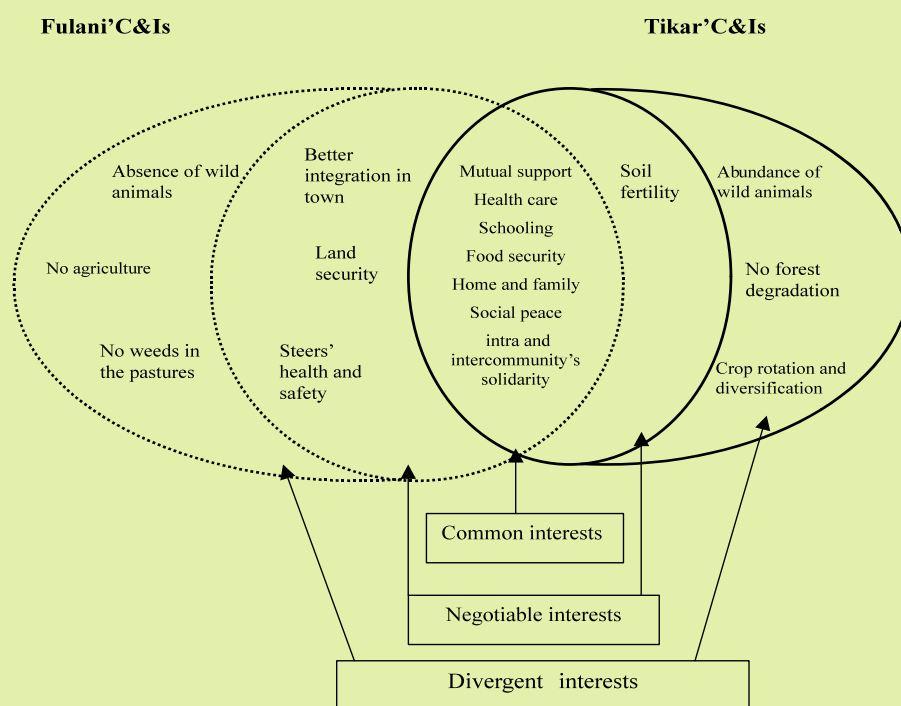> 5. of negotiable interests.
>
>
>
> Figure 1. A theoretical exercise of negotiation using simple C&I.

At the end of the exercise, the local facilitators came to the following conclusions: 1) both ethnic groups have a desire to live in peace and collaborate; 2) both groups have something to gain through collaboration – namely, safe access to land for settlement and pasture for the Fulani, and cattle manure for the Tikar to help them maintain soil fertility for their cash crops; 3) there is a need for a zoning plan that designates forest areas under the exclusive control of the Tikar, pasture areas to be allocated to the Fulanis, and farming areas that can be used rationally for agriculture and livestock activities according to a commonly established calendar.

The process of visioning change can be summarized in the following key steps:

1. Call a village or stakeholder meeting in a common location. Break the group up into smaller groups based on the prior stakeholder analysis (carried out during the diagnostic phase), which should have highlighted different interest groups related to the challenges or opportunities associated with climate change. These local stakeholder groups may often have gender dimensions, but many times are strongly differentiated by their level of vulnerability, livelihood systems (e.g. farmers, herders) or specific interests around climate change.

2. Ask the different groups to visualize their desired future situations when the problems resulting from climate change (as identified in the diagnostic phase) have been solved. You can do this, for instance, by asking the following questions: "If you travel to the future, toward the end of the project and the project has had incredible success in solving the problems identified in the diagnostic phase, what do you see happening in your community? What do you see people doing differently from what they do now? What do you see people doing similar to what they are doing now? What has happened in terms of the well-being of the different community members? What changes have occurred to the various resources available in your community? The following simple tool, filled in with words or drawings, is a useful visualization tool for visioning:

Current Situation   *Ideal Situation*

During the diagnostic and visioning processes, the facilitator of each group discussion should actively take note of all the change variables or criteria mentioned in their interaction with the group they are facilitating. They need to carry these variables into the subsequent step and actively check whether the concerns of the interest group they facilitated have made their way into the shared vision that will be developed and the associated action plans. Without this active role, the more powerful actors may dominate the planning process and the separate visions of the different interest groups can easily get lost.

3. Return to plenary and ask the different groups to present their visions. After all visions have been presented, facilitate a process for the larger group to come up with a jointly agreed vision. If there are clear incompatibilities in the different visions, or they are completely different and cannot be merged, they need to be considered separately. After the visions have been merged, all the facilitators of the different groups in Step 2 must make sure that the concerns expressed by their respective groups have been adequately captured or at least debated in the process of developing a vision.

4. Each of the facilitators in Step 2 should then present the change variables (or criteria[17]) identified (see Box 15) and ask the participants to comment on them and reconcile those that are at variance with one another. If it is recommended to eliminate some of these, the original proponents must be convinced of this decision before doing so.

5. Facilitate discussion on how the identified criteria will be operationalized, measured, and tracked. The following questions may be useful for this purpose: "For [criterion X], how will you recognize that you are going in the right direction? What signs will show you that you have achieved what you set out to achieve?" This is repeated until indicators are identified for all highlighted criteria.

Box 15. The benefits of articulating specific variables or "criteria and indicator sets" to represent and track changes occurring in a system (adapted from Ritchie et al. 2000)

Identification of desirable change variables and indicators and verifiers that will help assess whether these have been met, has the following advantages:

- It enables participants to express what a concept related to an end goal (e.g. "sustainable management of
- resource X") means for those involved in a change process.
- It enables participants to assess performance against predefined targets.
- It enables facilitators or participants to monitor impacts of management interventions and record change.
- It provides guidelines for action toward the end goal through the identification of best practices.
- It enables participants to adapt management strategies, based on what is learned from the above process.

From this point, you can then move on to the participatory action planning process, where stakeholders agree on the actions required to realize their visions and develop a plan for measuring performance toward this outcome – namely, measuring changes in identified indicators. This plan will specify the tools they will use to measure performance of different indicators, at what frequency and by whom. They will also identify what they can do, and what other actors should do, to enable them to realize their vision. A baseline study should also be carried out to assess the status of the various indicators, as this information is crucial for measuring impact later on.

Different social groups have different priorities. In some cases, the team may wish to ask the different groups to give weights to the different criteria (see Box 16).

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[17] *"Criteria and Indicators" (C&I) is used as a shorthand for a hierarchy of principles, criteria, indicators, and verifiers. Participatory and collaborative development of criteria and indicators by the principal stakeholders involved in a change process is a valuable tool for enhancing communication and mutual learning among local groups and between the community and external partners. It provides a mechanism for clarifying, articulating, and negotiating information about an end goal and the envisioned means to reach that goal. Principles are statements of ideals (e.g. "human well-being is assured") that provide reference points related to the end goal of a change process and a basis for defining criteria, indicators, and verifiers. Criteria are standards by which progress toward achieving principles can be judged, and are often expressed as a state or condition (e.g. "The PAR process contributes to widespread improvements in well-being"). Indicators are variables that can help to measure the extent to which criteria are met (e.g. "Increase in household income from resource X for all wealth categories"). Verifiers are the data or information needed to show whether an indicator is met (e.g. "Average household income from resource X for all wealth categories before and after PAR"). For more information, see Ritchie et al. (2000) and Prabhu et al. (1999).*

Rank	Criteria	Participating Focus Groups					Total
		Women	Elites	Youth	Medjang	Peulh	
1	Better access to health care	12	11	8	7	20	58
2	Social peace	6	15	12	7	13	53
3	Better children's schooling	9	10	10	8	6	43
4	Having a home and starting a family	7	5	9	6	8	35
5	Having community forests to manage	5	10	5	14	1	35
6	Access to information	7	8	7	9	3	34
7	Better land use organization	7	5	3	9	9	33
8	Food self-sufficiency	8	4	4	5	10	31
9	Promotion of social and economic development	6	6	7	6	5	30
10	Rational exploitation of forests	5	10	5	7	2	29
11	More solidarity within the community	5	3	11	4	4	27
12	Better community organization within CIG and associations	4	3	8	4	5	24
13	Unpolluted waterways	6	3	4	4	6	23
14	Soil fertility	9	2	3	5	4	23
15	Respect for fishing and hunting regulations	4	5	4	5	2	20

[1] Identifying indicators and verifiers is particularly important when C&I are to be used for monitoring purposes. This was not the case so we did not emphasize this last step.

This activity will help to capture the priorities of different stakeholder groups and to explore whether the change process is proving to be beneficial to different social actors. If it is discovered that this is not the case, these differentiated indicators become the basis upon which new actions aimed at meeting the needs of these social groups may be justified.

Generating a vision is a critical and often challenging task. While there is disagreement on whether the visioning process should identify visions that are realistic or expressions of the ideal, it is clear that one must move from the generic or ideal to the specific or real at some point in the visioning and planning process. Facilitating a process in which expressed visions are realistic is challenging. It can be done by careful questioning by the facilitator to probe deeper into past experience and to verify whether emerging proposals are realistic and achievable. Alternatively, visions are left as expressions of the ideal and the identification of more concrete targets during the planning process used to support achievable plans of action.

(ii) Identification of "boundary partners" or partners one wishes to influence

In some cases, such as when experimenting with new agricultural practices, the relationship between actions and expected changes is very simple. In other cases, such as when considering more complex adaptation strategies, such as early warning systems or integrating climate change adaptation into local development plans, the change process is much more complex. In order for such strategies to reduce the vulnerability of the community or system under consideration, or to increase its adaptive capacity, behavioural changes are required for a number of key persons or organizations. For the vision to become possible, participants in a PAR process must find ways to encourage them to take actions or change their behaviours and practices. These key persons or organizations

that the group or project will interact with directly and seek to influence are called "boundary partners," a term borrowed from the Outcome Mapping approach (Earl et al. 2001). During the phase of conceptualizing change, it is important to understand the desired roles of these partners and how these can be manifested.

Identification of boundary partners can be done immediately after the visioning exercise, in the same meeting. Once the vision has been defined and possible actions have been identified, the group can discuss these questions: "Who else's help do we need? Who do we need to influence? What do we expect from them so that the vision can come true?" Through this exercise, the group might find it necessary to bring some of the identified partners into the PAR team, rather than seeing them as external partners.

(iii) The results chain

The results chain is a tool that is borrowed from "Results-Based Management" approaches. It is also part of the impact pathway approach (Douthwaite et al. 2007), which we revisit in the section on Impact Assessment. It helps to conceptualize change by clarifying the relationship between inputs, activities, outputs, outcomes, and impacts, or the end goal.[18] It can be adapted to local contexts by using appropriate vocabulary. Its use is especially justified in complex situations where influence over boundary partners is necessary to achieve the vision. In this case, changes in the behaviour, relationships, and practices of boundary partners are some of the outcomes that must be articulated (among other intermediate stages that must be reached in order to achieve other types of impacts). Table 4 can be utilized as a tool for developing a results chain with stakeholders. The output column could be omitted in cases where the group does not plan to produce any intermediate product from the action.

Table 4. Questions that may be asked to aid in the development of a results chain

Inputs	Actions	Outputs	Outcomes (including actors to be influenced)	Vision / End Goal / Impacts
Who participates? What resources?	What activities are required to achieve the vision or end goal?	What type of publication or other tangible product will be generated?	What early changes are we likely to see if we are on the right track to achieve the vision or end goal? Who should we influence, and what do we expect from them?	What is the ultimate aim of the activity?

Learning Assessment:

The following questions are designed to help you evaluate your progress on conceptualizing change:
1. Why and when should a facilitator do a diagnostic study and visioning exercise?
2. What steps should be followed when doing a diagnostic study and visioning exercise?
3. Is it clear to you how the change envisioned by each stakeholder group varies from the current situation? Did the stakeholders identify a set of criteria to characterize desired future states?
4. What key differences exist in the visions and criteria of different stakeholder groups?
5. In the final negotiated visions, is it clear how the visions, priorities, and indicators of each stakeholder group are accommodated?
6. What new insights did you gain from carrying out such activities?

5.2.2.4. Baseline Study

Key aims

Baseline studies allow the starting point of a changing situation to be assessed using parameters relevant to the issue at hand. These parameters need to be observable, unambiguous, reliable, and measurable. As already mentioned, baselines are identified for local indicators as well as indicators to be monitored by the project team. These indicators should reflect the vision, and usually describe biophysical and socio-economic conditions. In climate change adaptation projects, these "indicators" should be related to sources of vulnerability and/or adaptive capacity. A baseline should also be established for key outcomes, i.e. key changes that are expected or desired from partners or other intermediate outcomes indicative of progress toward impacts.

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18   *The last of these may be called different things in different approaches, including objective, final outcome, impact, or vision.*

In the following sections, we will use the word 'indicator" to refer to both intermediate outcomes and impacts (e.g. conditions described in the vision).[19]

The identification of these parameters is an important exercise that starts during the participatory visioning (where local indicators are identified) and continues through team-based planning exercises in which specific targets as well as gaps in local monitoring are identified. As mentioned above, these gaps could be due to the need to verify outcomes and impacts for a broader audience, using more empirical research methods, or to help explain a wider set of phenomena (either how these are affected by the change process, or how they constrain it). Project-based monitoring can also help to capture the effect of the project on a set of values, such as equity or sustainability, that are of primary concern to the project or donors rather than local communities.

Core processes

1. Participatory baselines

Once indicators are identified in the process of conceptualizing change, participatory baselines are carried out. This may be done qualitatively in the same meeting, or through field-based measurement (in some cases with the support of the research team, either to assist in research design or in data collection). Wherever possible, the community should be encouraged to identify local indicators that they can measure on their own.

Baselines for qualitative indicators may be established on a 1 – 5 scale, with 5 as the maximum expression of a desired state and 1 the minimum expression or worst-case scenario. At the baseline stage, participants are asked to discuss where they think they are at the present time. Different individuals will have a different perception, due to their unique circumstances; if possible, different stakeholder groups should be encouraged to set their own baselines. Figure 7a illustrates a baseline constructed with 5 qualitative indicators, and Figure 7b illustrates the results of two subsequent participatory monitoring sessions (after key stages of implementation).
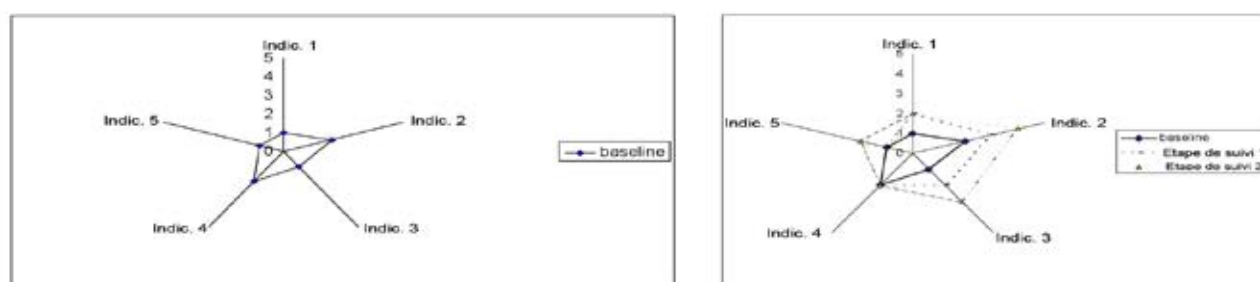

Figure 7: (a) Illustration of baseline for qualitative indicators; and (b) Results of participatory monitoring at key stages of the change process

2. Project baselines

It is important to carefully consider indicators to be monitored, given the cost and time that must be invested in tracking the performance and evolution of these indicators over time and conducting final impact assessments. While some authors propose generic approaches to monitoring, for example to observe changes in the various forms of capital – social, physical, economic, human, and natural (Endamana and Etoga 2006; Aldrich and Sayer 2007), we advocate an approach that is more focused on the specific problems to be solved. The way to achieve this is to conduct the baseline analysis following the steps of context analysis, participatory diagnosis, and stakeholder visioning, – when the scope of change is clearly identified.

The methodology for measuring the baseline situation of key indicators will depend on the specific indicator and standard norms of scientific rigour. For example, to measure the level of revenue from agriculture, standard household survey instruments would be utilized; if measuring the baseline level of soil fertility, soil analyses would need to be conducted; if assessing the frequency of conflict, more qualitative methods may be required, such as identifying relevant indicators (e.g. of conflict prevalence, intensity, or forms) through consultation with community members and finding ways to quantify these.

For examples of participatory and project-based baselines, see Boxes 17 and 18, respectively.

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[19] *The word "indicator" can be found to be inadequate for these types of changes, because they tend to occur in ways that are unexpected. The outcome mapping methodology proposes the term "progress marker" instead of "indicator" for this reason. Independent of terminology, in outcome mapping it is important to describe changes in the behaviour, practices, and/or relationships of key boundary partners that will be monitored.*

Box 17. Participatory baselines: The case of conflicts between local communities and loggers in Cameroon (A.M. Tiani)

In 2007, CIFOR was designated by WWF to manage conflicts associated with local opposition to forest concessionaires involving some 74,000 hectares. As this site was previously unknown to CIFOR facilitators, a multi-disciplinary team was established to conduct a diagnostic survey of the area. A five-day field trip was planned to establish contact with actors at various levels (concessionaires, administrative and traditional authorities, a civil society and leaders of local associations), to discuss the objectives of the project and to seek their support. A second field trip, of three weeks' duration, led to the characterization of the site through a context study. The site, made up of about 50 villages, was divided into four areas based on cultural identity, each one formed by many villages and surrounding hamlets. In each area, discussions were held by calling together focus groups of villagers and loggers, men and women, youth and adults, dominant ethnic groups and pygmy minorities – jointly and separately, according to the objectives. Various domains were explored:

- Socio-cultural context: Identification and analysis of stakeholders, resource access rules and land tenure, the structure of power and decision-making, and social capital in the form of collective action;

- Socio-economic context: Economic activities, economically important resources and their use, marketing, and socio-economic infrastructure;

- Socio-ecological context: Ecosystems dynamics and their causes; the spatial layout of resources and land uses; and the socio-cultural and economic importance of each ecosystem for different actors.

This context study was followed by a participatory diagnosis of conflicts, conducted through multi-stakeholder workshops in each area and analysis of findings among the facilitation team, as follows:

1. Identification of stakeholders and objects of conflict;

2. Listening exercise, giving the opportunity to each party to the conflict to formulate and express their grievances freely, and to propose solutions;

3. Discourse analysis following or during each event on the reality of logging and how it affects each actor;

4. Identification of points of convergence and divergence among the actors in conflict, and key points for further negotiation;

5. Identification by each group of a set of criteria and indicators of good forest management;

6. Negotiation of perceptions and determination of a set of consensual criteria and indicators.

7. The baseline was then designed to understand the current status of negotiated criteria and indicators. This would later serve as the basis for evaluating the project's success in fostering good forest management and, as a consequence, resolving conflicts.

Learning Assessment:

The following questions are designed to help you evaluate your progress on "Understanding Starting Points":

1. How do context studies, diagnostic studies, and baselines differ?

2. Did you have a good understanding of the context in which climate change challenges play out? What are the key climate change adaptation challenges being faced by local actors, and how do they affect different stakeholder groups?

3. Do you have a good understanding of the cause-and-effect relationships between different variables? Did this enable you to identify opportunities for strategic intervention or "points of leverage" that are likely to enhance local adaptive capacity? If so, on what basis was this identified (local perceptions, biophysical data, both)?

4. Do you have a clear set of indicators that will be used to track progress in PAR? Have you measured or assessed the current status of these indicators?

5.2.3. Planning

The stage of understanding the current situation and aims will have allowed a preliminary identification of possible actions to carry out and partners to influence in order to reach a desired vision. The planning stage involves developing detailed action plans and action research protocols from these preliminary steps.

5.2.3.1. Types of Planning

In action research, there are often two types or levels of planning: team-level action research planning and participatory action planning with local communities and other stakeholders. This is due to the slightly different aims (impact vs. research), elements, and participants of the two processes. The two processes need to be conducted iteratively, due to the need to link local action plans and priorities to global research questions and audiences. While it may be debated which of the two comes first, we have found that an initial stage of action research planning is required prior to participatory action planning. This enables the articulation of the rationale for engaging in change processes (particularly for researchers), and global (common or widespread) challenges to which we can best contribute understanding. The second step is to identify global research questions or hypotheses or both to guide the change process. These are linked to an understanding of widespread challenges or opportunities; and to theory, which must be adjusted based on the articulation of local stakeholder concerns. The result will be a generic framework (a set of components or elements) for facilitating change that is grounded in theory. In the case of the CCAA program, this might include the following tasks:

1. Articulating reasons for focusing on climate change adaptation and foundational elements of adaptive capacity (local practices, service delivery, policy) that remain poorly understood and for which we can make the biggest contribution;

2. Developing research questions and hypotheses at the level of the CCAA program and in each funded project; and
3. A literature review to understand key challenges related to climate change adaptation, to discover how existing bodies of theory inform change for each identified challenge, and to distill a set of "best bet" strategies that are most likely to enhance adaptive capacity.

Following this initial step of action research planning, participatory action planning is carried out. This involves a broadly inclusive planning process at the level of the community, landscape (involving multiple communities), or multi-stakeholder platform. It may also be followed by more in-depth planning around specific issues characterized by their complexity or by divergent interests that need to be reconciled. Participatory action planning is followed again by deeper development of action research protocols, to link global questions with local priorities. While some components of action research planning remain fixed – for example, the background or rationale and research questions, others may evolve over time. For example, new hypotheses may emerge as learning progresses, and facilitation approaches planned in the beginning require adjustment to best respond to emerging challenges or opportunities. Efforts to articulate the linkage between the global research and the local change process are therefore ongoing, and are iterative in nature.

5.2.3.2. Action Research Planning

Action research planning aims to ensure that the PAR process will contribute to the generation of lessons for a broader global community. An initial stage of planning is required to ensure that the "research" is not lost in the focus on problem-solving: that is, the subject of PAR. Action research planning has the following objectives:

1. To articulate the background and rationale, including theory and the contextual challenges (institutional, ecological, economic, etc.) that have hindered change in the past, so that the change process is informed by theory and context;
2. To articulate the research in PAR and to explain how pilot "case studies" on change will inform a broader community of practitioners working on similar issues;
3. To ensure that the research team plans the overall approach that will be used to facilitate (catalyze) change, including a general set of steps and detailed plan for facilitating the first few steps (up to participatory action planning); and
4. To ensure that information is gathered at diverse stages and contexts, and from diverse stakeholders, to enable claims about key elements of change and its impacts to be substantiated, which will give credibility to the lessons and methodologies when disseminating them.

The action research planning process consists of a multi-disciplinary and multi-institutional team of researchers and practitioners convening a meeting to discuss the main focus of research within the project. Key questions to be addressed during the meeting include these: What general lessons can we learn from the change process in order to inform the global community about what is required to support climate change adaptation in Africa? What type of approaches to problem-solving can be developed or distilled from field-based learning in pilot sites? The team should come together and reach a common understanding of the background and rationale for engaging in change, the key research questions and hypotheses related to the change process, how impacts will be assessed, and the general framework or strategy for addressing climate change adaptation challenges as facilitators of a PAR process. The output of this planning process takes the form of an action research protocol, which has the following elements:

1. Title
2. Background and justification
3. Objectives of change
4. Research questions and hypotheses
5. Approach to be used in facilitating change
6. Information to be collected on the change process and on the impacts of change, and methods for collecting it
7. Outputs that will facilitate broader information sharing
8. Expected outcomes

Each one is discussed in turn:[20]

1. Title

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20 *Adapted from German et al. (2006).*

Develop a simple title, stating the purpose of research in the specific location and making reference to broader questions: for example, "Enhancing Climate Change Adaptability in West Africa Through Local and Regional Level Collective Action" or "…through Attention to the Temporal and Spatial Scale of Impacts and Responses."

2.   Background and justification

The background should clarify the rationale for pilot-testing change processes in particular locations or institutions. Potential strategies for addressing the problem, based on assumptions or hypotheses about the main barriers perceived to be hindering resolution of the problem, are then discussed. As much as possible, this should be drawn from a broader theory, from literature, and/or from a set of experiences that have proven to be effective in addressing similar challenges. The research protocol should also explicitly link the background of the particular issue to be addressed in the site to broader global questions to which the research is contributing. In addition to constructing the background and rationale "upwards" (to theory) and "outwards" (to a wider body of practitioners or practice), it is also important to connect it "downwards" (to stakeholders in pilot sites). Stakeholder inputs from participatory consultations or formal problem diagnosis and prioritization are then described, with a focus on stakeholder priorities and how they will influence the action research process or the set of innovations to be tested. The dynamics of the particular case in question (including reasons why the problem has not yet been solved despite actors' awareness or prior attempts to address the issue) should also be characterized.

3.   Objectives of change

Action research protocols can involve one set of objectives, or nested objectives that emphasize the primary and secondary focus of action-oriented research and innovation. Primary objectives for action research should focus first and foremost on problem-solving. While understanding is also fundamental to problem-solving, the latter should be the primary focus of research. This includes solving problems in the specific location where research will be carried out, as well as contributing to a broader understanding of how to solve similar types of problems elsewhere. Secondary objectives are generally sub-components or more detailed aspects of

> **Box 19. Example of action research objectives**
>
> Primary Objectives:
>
> 1. To develop effective approaches for climate change adaptation in support of vulnerable communities in West Africa.
> 2. To derive broader lessons for climate change adaptation that can be of use to the global community, particularly those working in dryland areas.
>
> Secondary Objectives:
>
> 1. To harmonize interactions between diverse levels of socio-political organization in responding to climate change uncertainties in pilot areas of West Africa.
> 2. To develop a set of tools to enhance local and institutional capacity to consider the long-term consequences of today's actions.

primary objectives. They may make reference to dimensions of the approach to be used, or to the ultimate audience for which action research is conducted (see Box 19 for an example).

Objectives may be defined in part by an international community seeking answers to long-standing challenges or problems, in particular in the context of programs such as CCAA, which seek to come up with general principles from site-specific solutions. However, local stakeholders must play a role in defining objectives – whether generating new objectives based on local priorities or adapting global objectives to the local context – for action research to generate socially relevant outcomes. This is one of the components of the action research protocol that needs revisiting after participatory action planning.

4.   Research questions and hypotheses

Action research questions, rather than describing situations, explore characteristics of effective change processes. Common ways in which action research questions may be phrased include these:

•   What is an effective approach for [doing x]?
•   How can [objective y] be effectively achieved in practice?

- What are the necessary conditions or processes for [outcome z] to emerge?

While they can be phrased as "what questions," the emphasis is generally on the "how" – in this case, how to address adaptation challenges or to support adaptive capacity. Action research questions are targeted to particular objectives or desired outcomes. Questions generally express a desire to identify effective pathways

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Box 20. Examples of action research questions and hypotheses

Research Questions:

1. What are effective approaches for harmonizing interactions between diverse levels of socio-political organization in responding to climate change uncertainties?

2. What are effective approaches for enhancing local and institutional capacity to consider and accommodate (in their decisions and behaviours) the long-term consequences of today's actions?

Hypothesis:

1. Enhanced ability to consider the long-term consequences of past and current actions on local adaptive capacity, structured interactions between actors at diverse levels, and empowerment of local communities to demand improved service delivery are necessary for harmonizing interactions between diverse levels of socio-political organization.

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to the achievement of these objectives. Examples of research questions and hypotheses related to climate change adaptation are given in Box 20.

5.   Approach to be used in facilitating change

While research is often made operational through a methodology, action research is more easily framed in the form of an "approach." The Oxford American Dictionary defines "approach" as "a way of dealing with something" or "an approximation to something." In turn, "method" is defined as "a particular form of procedure for accomplishing or approaching something, especially a systematic or established one." In simpler terms, an approach is either an approximate or "best bet" strategy for doing something, or a general way of tackling a problem whose details are only worked out in practice. An approach is more flexible than a method, which tends to be fully prescribed upfront and held fixed during implementation.

In action research, an approach is defined in the form of approximate steps in a participatory action research

process to be carried out in communities, landscapes or organizations undergoing processes of innovation. The approach, when described in an action research protocol, might look like what we see in Box 21.

6.   Information to be collected on the change process and on the effects or impacts of change, and methods for collecting it

This section of the action research protocol highlights what kinds of information will be collected and at which stage of the process. Data collection can be aimed at enhancing social learning as the process unfolds or can be used for understanding and substantiating claims to impact. Forms of data collection for observing process generally include periodic participatory monitoring and evaluation meetings (including information on how local indicators are seen to be performing through time) and process documentation by the action research team. To be able to assess impact and monitor progress en route, outcome and impact assessment methods are used. These may include outcome mapping to monitor intermediate outcomes such as attitude and behavioural change of "boundary partners." To be able to substantiate claims to impact with the global

research and development community, on the other hand, baseline information on the "starting point" and formal impact assessment studies are required. These instruments are discussed in greater detail in the sections on Managing Change and Empirical Research Inputs to PAR.

7.   Outputs that will facilitate broader information sharing

Outputs are in the form of "how to" messages and their packaging for diverse end users. These may be in the form of methods guides for practitioners, policy briefs for organization managers, media releases for the general public, or community information products (videos, posters, pamphlets in the local language). Outputs should also be targeted to the level or scale of the impact domain – whether district, national, regional, or global. Higher-level impact domains will require the synthesis of action research findings across a number of specific cases that are distributed throughout – and therefore are representative of – the target area.

8.   Expected outcomes

Outcomes of any action research should be clearly identifiable from the outset, based on a general understanding of the problem resulting from literature reviews (see Box 22), field experience, and stakeholder consultations. These should emphasize the nature of solutions expected from the PAR process in the specific location where it is carried out (see Box 22 for examples). An anticipated outcome for action research on climate change adaptation might read, "Adaptive capacity of rural communities in selected sites is enhanced through

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Box 22. Applying institutional theory to watershed management PAR (German et al. 2007)

A sub-project of the African Highlands Initiative, funded by the Collective Action and Property Rights Program of the Consultative Group on International Agricultural Research, aimed to explore the institutional foundations of natural resource management (NRM) – including local institutions and outside support agencies. The primary objective of this project was to develop and document successful approaches to facilitating equitable collective action processes and negotiated NRM solutions. This work was based on global literature on collective action and institutions in NRM, which highlighted what is known about local and external institutions. For the former, the literature had documented in detail the characteristics of local institutions (including social groups) and rules on NRM where shared resources had been managed sustainably (Leach et al. 1999; Ostrom 1990, 1999; Pandey and Yadama 1990; Wittapayak and Dearden 1999). These included (i) locally developed rules on resource access and management; and (ii) sanctions or punishments for those who break those rules, among others. This literature, however, had one key gap: whether and how these local institutions could be catalyzed where they are absent. The literature on outside institutions highlighted the role of development agencies in encouraging elite capture of natural resources and project benefits, but not how to manage elite capture for more equity. In short, each body of literature focused more on understanding than on doing. It was thought that negotiations among local user groups in the first instance, between communities and outside actors in the second case, and formulation of rules to enforce agreement, could go a long way in enhancing equity in agriculture and NRM. Research sought to address these shortcomings by integrating institutional analysis (for problem identification and targeting of interventions) with action research (institutional interventions to develop approaches to strengthening local institutions and enhance equity). These were the global questions that framed site-level action research interventions.

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methodological and institutional innovations that encourage long-term planning horizons and foster mutual awareness and respect among actors at multiple levels of socio-political organization."

An example of what an action research protocol looks like in final form is provided in Box 22.

Box 23. Sample action research protocol (from German et al. 2007)

Title: "Improving Equitable Access and Benefits from Technology Dissemination in Gununo, Ethiopia"

Background and Justification: Gununo Watershed is located in the highlands of southern Ethiopia, where land is scarce due to intense population pressure. Productivity of crops is very low due to several factors, of which poor genetic potential is one. Thus, food shortage is common for at least three months, even in years of good rainfall. The government has tried to disseminate improved seeds to farmers through credit. However, repayment rates were very low and the government is currently disseminating improved seeds to farmers for cash payment. As most farmers in the watershed, especially women, are resource poor, it has become difficult for them to access improved seeds through this system. During preliminary focus group discussions, women complained of an extreme gender bias in agricultural extension. Biases toward wealthier households were also noted. Hence, participatory action research was conducted to generate new approaches for technology dissemination that are both more equitable and more viable due to lower levels of risk to farmers and higher levels of repayment.

Objectives: The following objectives guided this research: (1) To enable local negotiations to establish mechanisms for equitable technology access and utilization, irrespective of gender and wealth; (2) To implement strategies (local by-laws, credit systems, or technology targeting systems) to enable equitable technology access and related benefits; and (3) To understand the key elements (policies, institutional practices, credit systems, negotiations, etc.) for enhancing equity in technology access and benefits.

Research Questions and Hypotheses:

Research Question: What is an effective approach for enhancing equitable access to seed and higher rates of credit repayment in Areka, and what are the implications for other food-insecure regions?

Hypothesis: Negotiation support and by-law reforms can help to enhance equitable and viable approaches to seed dissemination through participatory development of rules for access and repayment and the enforcement of these rules.

Approach and Data Collection:

Steps in the Approach	Data to be Collected
1. Local negotiations to identify social units to mediate technology sharing and other mechanisms for enhancing equitable technology access	Process documentation (PD) report of the negotiation process and agreements reached using the PD Guide
2. Design and implementation of local by-laws (planning) for improved equity in technology dissemination and utilization	Process documentation of different steps in the by-law negotiation, endorsement and enforcement process using the PD Guide
3. Participatory M&E with diverse actors (male and female farmers, participatory action leaders, organizations involved in technology dissemination) to monitor whether innovations in the approach are bringing about desired changes in equity and loan repayment	Participatory M&E reports identifying successes and challenges in improving equity in technology access and related benefits, with action plans that clarify how identified barriers will be addressed
4. Trouble-shooting to address identified barriers in equitable technology access	Process documentation reports of activities designed to address barriers to equitable access using the PD Guide
5. Impact assessment.	Impact assessment report on technology access, utilization, and benefits for female farmers and poorer households

Outputs: Research paper summarizing the approach used, how it differs from conventional approaches, and the outcomes for different groups.

Anticipated Outcomes: (1) More women and poorer households are accessing technologies through negotiation of rules for equitable access, rule enforcement, and in-kind credit; (2) High rates of loan repayment contribute toward a more viable credit system.

See Box 23 for an example of a distilled version of an action research protocol, illustrating how the various sections fit together. For a detailed version of an action research protocol, see Annex II.

5.2.3.3. Participatory Action Planning

Participatory action planning aims to support local communities and other stakeholders to develop a concrete strategy for moving from the visioning process to actions that will enable them to achieve the vision. This plan must be detailed enough for participants to know what they will do, and when, toward the realization of the vision. Thus, it must include key actions and state how these actions will be carried out, by whom, and when. The resources required to support change will also be highlighted, with emphasis first on local resources (in the form of specialized knowledge, local materials, labour, or financial contributions), with external resources aiming only to fill gaps and complement local inputs. It is important to match local resource contributions to the capacity of different households to contribute, to ensure that the poorest and most vulnerable are not further marginalized in the process.

During planning, it is always difficult to balance the need for direct participation of a large number of people who will ultimately be affected by the planning process and the desire to have a single, comprehensive action plan with a common vision and plan for its realization. The more "localized" the planning (e.g. village level), the greater the number of participants and the greater the buy-in from a larger number of individuals. Conversely, planning at higher levels enables the development of a more integrated action plan covering a

The Ottotomo Forest Reserve, located in central Cameroon, is legally off-limits to human activities. There are growing agricultural encroachments from local communities that claim customary use rights in the reserve, bringing communities into conflict with the reserve management authority, the National Forestry Department Agency (ONADEF). In 2000, the adaptive collaborative management (ACM) research project supported by CIFOR and the European Commission made contact with ONADEF to give support to the management of the reserve by facilitating the identification of a set of approaches, strategies, institutional arrangements, and mechanisms that were necessary for enhancing stakeholders' interaction.

One of the first considerations was how to structure the interface between the project and the villages surrounding the reserve. As there were 14 villages with a significant population around the reserve, it would have been too costly to interact with all local residents in the area through general meetings. The project therefore decided to work through village representatives, who were in turn chosen in village fora through a general consensus. During a workshop held to plan for future management of the reserve, it was agreed that there should be no further encroachment into the reserve. In exchange, alternative livelihood options, such as non-timber forest products, bee-keeping and livestock keeping, would be promoted. While there was a high degree of consensus during the meeting, shortly after the meeting a number of farmers continued to clear forest patches for agriculture within the reserve's boundaries. When project representatives went to find out the reason, these farmers met their questioning with confusion – saying they were never informed about the meeting's outcomes. Whether this is the case (i.e. whether they had never been given the opportunity to give their consent to the plan) or whether they simply lied about being uninformed is unclear. However, it illustrates some of the difficulties of establishing effective processes for local representation in the context of PAR projects. "Representatives" must inform their "constituents" about a meeting's outcomes, and "constituents" in turn must be given the opportunity to suggest modifications to draft plans – and to give their formal consent in public. Only in this way can they realistically be held accountable to what is planned in their absence. Such mechanisms for feedback and more widespread validation and input are essential for effective "community representation."

larger area and minimizes the time invested in participatory planning by project personnel. Projects tend to go for a higher level of planning so as to minimize the transaction costs of interacting with communities in the target area. This interaction can be quite problematic if the area is large, as it is difficult to develop structures and processes for effective representation (see Box 24).

Generally, a combination of approaches will be needed to balance the need for representation and buy-in with the desire to minimize transaction costs and have an integrated action plan to facilitate implementation. One strategy that might be used consists of the following steps:

1. Ensure that the diagnosis systematically consults diverse groups (villages, gender and ethnic groups, interest groups) on problems faced and priorities for intervention.
2. Based on these priorities, hold a participatory action planning event at a higher level, using representatives of diverse constituencies to plan on behalf of others (if the area is very large). These representatives must be clear about their terms of reference in this meeting – namely, that they are there to plan on behalf of others and must consider these interests above their own during planning.
3. Ensure that representatives conduct feedback and validation meetings in their communities, to report back on what was planned and to solicit new ideas and modifications to the plan. This step ensures broader awareness and buy-in and will help to mobilize a larger set of actors during implementation.

The language and format in which feedback is provided are also essential. Feedback should be provided using the local language and didactic tools that can be understood by all. Feedback will often need to occur through village-level meetings, given the transaction and opportunity costs associated with people's time investment. However, attention should be given to soliciting inputs from the most marginalized: for example, by encouraging them to attend or provide inputs, and by using smaller focus groups to solicit their inputs in the context of larger meetings.

From diagnostic and visioning steps, one or more areas for intervention will have been identified. From appreciative inquiry, local resources that can be leveraged to reach desired future states will be known. This information must be brought forward into planning, as a means to kick off the discussion during Step 2. While the planning meeting could be chaired by the local leadership, great care needs to be taken to ensure this does not silence minority groups or opinions. If it is not possible to tactfully suggest a neutral facilitator, local leaders should be given adequate prior briefing on the objectives of the meeting, and detailed plans should be jointly developed to ensure adequate stakeholder representation during the event. At this time, the project team should also be informed about local protocols to be used during meetings, such as political protocols or prayer. At the beginning of the meeting, participants should be briefly introduced, and meeting objectives and participant expectations clarified. This activity should be followed by a plenary presentation of activities

conducted thus far, their purpose, and the findings. This can also be an opportunity for community members to present the visions and priorities articulated in earlier meetings; participants of this meeting can also give inputs. The presentation should highlight a few areas of intervention that were prioritized during the diagnostic phase, as this forms the basis of group discussions during planning. Depending on how comfortable different groups (based on gender, age, or ethnicity) are in expressing themselves in public, groups can either be of mixed composition or broken down according to the social categories that most constrain free expression. Ideally, groups should be organized according to these social categories so that all parties are able to effectively contribute to each of the intervention areas.

Within each of the groups, the following are some basic steps that can be followed:
1. Recap the issue being discussed, including the visions of change articulated earlier.
2. Discuss the issue or problem to be tackled to ensure that all participants have internalized the topic of discussion.
3. Brief group members on the format of the action plan, which generally has the following components:
(i) What (Activity)
(ii) How (Approach)
(iii) Who (Roles and responsibilities)
(iv) When (Timeline)
(v) With what resources (local first, from appreciative inquiry, followed by external).

It is also possible at this time to revisit the following tool (if it was used during visioning) and ask participants to articulate actions that can help move them from the current to the ideal situation.

Current Situation   *Ideal Situation*
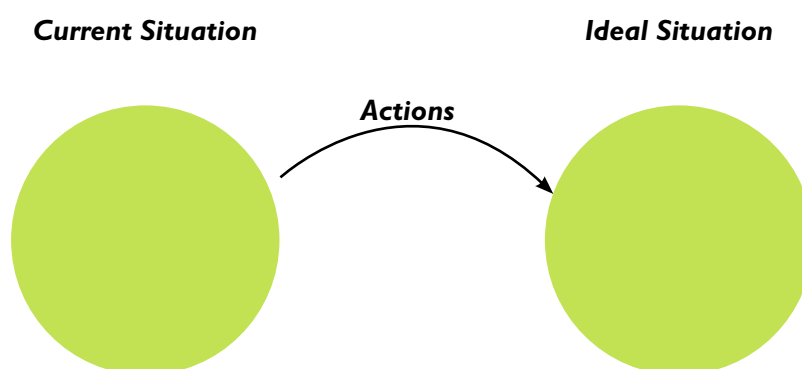
Actions

4. Develop an action plan for the topic given to the group, in the following format:

Activity	Who	How	When	With what resources

It is important to adapt the medium to levels of literacy in the area in which the planning is taking place, either by avoiding open use of paper or writing (keeping the documentation discrete) or by adapting any number of participatory tools that do not rely on literacy.

5. If time permits, develop a plan for participatory monitoring and evaluation, including local indicators and plans for data collection. This can be done by revisiting the "ideal situation" from the visioning step, and turning each future state into a measurable indicator by asking, "You mentioned that if you are successful, you will see change X. How will you recognize that you are going in the right direction? What signs will show you that you have achieved what you set out to achieve?" Facilitators should make sure that there are indicators associated with changes expected over the short term (e.g. intermediate outcomes) in addition to end goals, so that early progress is observable.

Actions can be taken by individuals or groups, and by meeting participants or those they wish to influence

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Box 25. Using visioning as an action planning tool in Mafungautsi State Forest, Zimbabwe (T. Maravanyika)

Mafungautsi State Forest is located in Gokwe South district, in northwestern Zimbabwe. Given the limited progress achieved by a joint forest management initiative involving the government forestry department and local communities living around the forest, the Center for International Forestry Research initiated a project on adaptive collaborative management (ACM) in 1999. Due to the high level of disillusionment about a former project on forest management in the area, the ACM team needed to start by inspiring local people to take an active part in addressing their problems. Instead of asking people to focus on their problems, which were numerous and could only add to their sense of frustration, the facilitators decided to use visioning as an action planning tool. Visioning fosters proactive thinking and stimulates creativity for local stakeholders to break out of established patterns and achieve their objectives. Stakeholders were asked to describe their desires for development in their area, as well as the desired status of their natural resources in the coming two years, by reflecting on a few key variables: status of the resource, number of people harvesting the resource, harvesting methods, availability of markets, selling and harvesting price, revenue from the resource, and rules and regulations governing resource use. After developing their visions, stakeholders were asked to describe the current situation in terms of development and the status of natural resources, using the same criteria they used to come up with their vision. Participants were later asked to identify things they thought could hinder them from moving from the current situation to their desired vision. They later came up with strategies and action plans to deal with the possible hindrances they had identified. This way of planning generated excitement among the local stakeholders, who were previously disillusioned and felt powerless to change their situation. With visioning, the local stakeholders regained confidence that they could do something to move toward their desired future.

(in which case, actions will be needed by participants to approach and engage those actors). They can also be about enhancing skills and knowledge, about changing one's own behavior or the behaviour of others, or about changing conditions in the real world. See Box 25 for an example of a participatory action planning process involving multiple stakeholders.

Once sub-groups have finished their work, a selected individual (if possible, a community member) from each sub-group then shares the outputs with the large group in plenary. Following each presentation, participants are given an opportunity to ask questions, express their concerns, and add their inputs. Through discussion, the participants can jointly agree on how to modify the draft work plan. Prior to closing, the participants should also come up with a monitoring plan to ensure that the actions agreed upon are being implemented, and ensure that remedial efforts are carried out in time. This might include adjustment of the work plan to reflect resource constraints, engagement of stakeholders who are slow in getting involved, or follow-up negotiations to bring reluctant stakeholders fully into the change process. An illustration of a participatory action plan is presented in Box 26.

Box 26. Participatory action planning to manage common pool resources in Zimbabwe (N. Nemarundwe)

Natural resource management regulations crafted under the colonial administration and inherited by the post-independence government in Zimbabwe were highly centralized and top-down, but largely ineffective due to limited capacity to enforce. This case study presents efforts by various stakeholders to enhance community inclusion and participation in managing their woodlands and water resources through visioning, scenario building, and development of community action plans to guide implementation. Prior research on institutional arrangements for managing common pool resources such as woodlands and water had revealed a problem with the district government authority and village-level resource management institutions: there was little or no synergy between the multiple institutional structures, and despite an array of District Council by-laws, enforcement was ineffective. The Institute of Environmental Studies and its partners (CARE International, CIFOR, Centre for Ecology and Hydrology, various government departments and Uppsala University) saw the need to facilitate a participatory resource management approach that would be more inclusive, and so decided to bring the stakeholders together to craft more workable by-laws.

Visioning, Scenario-building, and Planning

Visioning exercises were first facilitated with community members to solicit local people's views on approaches for managing common pool resources and addressing governance challenges, and to build community representatives' confidence in articulating their views with district officials. As a follow-up to each meeting, three smaller and shorter meetings were facilitated by catchments to further develop the community vision, prepare presentations and select presenters for a district meeting. Role plays were used to allow more sensitive views to be expressed, such as local power dynamics, use of revenue from fines, and favouritism by local leaders in enforcing rules. At district level, District Councilors explored possible pathways to inclusive resource governance arrangements (scenarios), such as the devolution of resource management to lower levels. Community representatives presented the visions developed in village meetings, and communities and the District Councilors developed shared visions of the future as a first step toward redefining current development pathways. It was agreed that resource management decisions be devolved from the District Council to local communities, and that the Council would become primarily a facilitator of community-led initiatives. A participatory action plan was developed to operationalize the agreed vision, as seen below:

Sample Action Plan

Governance issue	Action to be taken	Community roles	District Council roles	Time frame
Lack of clear rules and regulations	Formulation of rules and regulations	Propose rules and regulations	Rationalize and adopt proposed rules and regulations	Jan.-Mar.
Lack of enforcement	Design enforcement mechanisms	Employ monitors and apply sanctions	Arbitrate, review system, and train monitors	Jan.-Mar.
No fines, levies, or royalties	Design a system of fines and levies	Set levels, impose fines, and collect	Approve and monitor	Jan.-Mar.
Poor maintenance of infrastructure	Formulate maintenance strategies	Co-fund and implement	Co-fund, monitor, and evaluate	Apr.-Sept.
No land-use plans	Land-use planning	Produce plans	Facilitate and coordinate across villages and approve	Apr.-Sept.
Lack of M&E plans	Design M&E framework	Undertake M&E	Facilitate and coordinate among villages; approve	Dec.

If time permits, it is important to set the foundations of a monitoring plan, including the identification of indicators that will help to track progress over time, agreement on methods, responsibilities, and a timeline for data collection and review. The objectives agreed upon during participatory planning become the "guiding star" for monitoring, as reflections on progress should relate to what the participants are striving to achieve. During the planning meeting (in groups) or in a follow-up meeting held shortly after the development of the action plan, local indicators that will be used to monitor progress toward agreed objectives are identified. This is done by asking, "If you are successful in achieving [x], what changes will you see? What will be different in [two months', six months', and two years'] time?" Local indicators will be different for different actors; full participation of all stakeholders in defining these indicators is important.

When employing a results chain, indicators or "targets" are identified at each stage of the impact pathway (see Table 5). For outcomes and progress toward the general objective or vision, targets can be graduated[21] and divided into expected (what the project or group can "guarantee" or be accountable for) and desired (what the project or group hopes to see) outcomes. This graduation allows the inclusion of changes that would indicate high levels of achievement (e.g. increased involvement of boundary partners or significant improvements in livelihoods) but for which their absence would not mean that the intervention was ineffective. If some of the targets refer to indicators that were not covered in the baseline study, baseline observations and data will need to be acquired for these indicators. These baselines may depend on the perception of involved actors or may be directly measured.

Table 5. Possible format for articulating (graduated) targets in a results chain

Inputs	Activities	Outputs	Outcomes	Progress toward the vision or general objective
			Expected:	Expected:
			Desired:	Desired:

Following the identification of indicators and/or targets, participants agree on a methodology for monitoring change in each indicator. Facilitators will need to expose participants at this time to different types of methods – both direct measurement with quantification, and more subjective evaluations based on the perceptions of different stakeholders. Finally, a monitoring plan is developed that specifies roles and timelines. For more details on monitoring and evaluation, please see the section on "Managing Change."

Learning Assessment:

The following questions were designed to help you evaluate your participatory action planning projects:

1. Which tools were most useful in enabling stakeholders to plan? What did you learn in the process?

2. Was stakeholder representation and buy-in effective? Have you carried out any activities to assess local awareness of the action plan?

3. If planning was conducted with or through representatives, how many feedback meetings were held relative to what was planned? Was the action plan modified to incorporate inputs from feedback meetings?

4. Does the action plan clearly specify roles and responsibilities of diverse actors (including names),

5. and does it have a monitoring plan for ensuring that commitments are carried out?

5.2.3.4. Adjustment of Action Research Protocols

Following participatory action planning, action research protocols need to be adjusted to reflect the steps chosen by the protagonists or stakeholders themselves for fostering change. This will usually result in a more elaborate or nuanced set of steps for facilitating change, and will often result in additional objectives and outcomes. At times, additional rationales for the process or research questions may be developed from such stakeholder input.

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21 *This graduation is inspired by the Outcome Mapping graduation of progress markers into "expect to see," "like to see," and "love to see." Users might find it more manageable to work with two graduations, expected and desired.*

5.2.4. Managing Change

Steps 1 to 3 above are preliminary steps in initiating the process of change. This step (4) is a complex and iterative process of implementation, monitoring and evaluation, and replanning of actions to enhance the likelihood that the change process will be effective in achieving its end goals. Through monitoring and evaluation, all results of previous steps are re-evaluated and work plans adjusted to address challenges faced in implementation, capture emerging opportunities and/or maintain courses of action that are considered effective. It is through such a process of action, reflection and replanning that implementers of the change process make progress in resolving their problems. It is important to recognize that the duration of this step far exceeds the duration of all other steps in the change process. Time must be taken after the team-building, diagnostic, and planning phases to experiment with several iterations of change, in a trouble-shooting process that requires time – irrespective of how seasonal or drawn out a process is. A minimum of two years of implementation is often required to make progress with action research; in the case of climate change adaptation, it is best to view the process as ongoing. The implication is that iterative steps of action and reflection must be embedded in standard institutional practice.

Managing change consists of two key activities: (i) supporting the implementation of planned activities, and (ii) monitoring, evaluation, and adjustment. These are described separately below.

5.2.4.1. Supporting the Implementation of Planned Actions

Implementation of planned actions is relatively straightforward, as a road map for change has been developed through the action research and participatory action planning processes. The change process needs a number of organizational activities in support of implementation, which often include: arranging logistics (resource mobilization; organization of work, roles and responsibilities); building involved groups' capacities for implementation; local conflict and problem resolution; ensuring ownership of the change process by the involved groups; doing institutional strengthening; and developing experimental designs for actors in the change process to try out options, with detailed operational plans for each.

Several challenges will inevitably emerge during implementation of planned activities, irrespective of the skills of the facilitator. Supporting the implementation of planned activities is therefore the most critical part of the PAR process. While many of the resources and facilitation strategies required to overcome constraints will have been identified during the diagnostic and planning stages, others will not be anticipated at the time of planning and will only emerge through implementation. Emerging challenges may result from distrust among and within different stakeholder groups; from the failure of participants to fully understand how responsibilities and benefits are to be shared; from competition for resource or benefit flows; from the interference of new actors; or from a number of other reasons. In the absence of experimentation and flexible, responsive approaches to change, challenges will all too often lead to failure. Therefore, change processes need continual monitoring and evaluation to encourage proactive reflection on their effectiveness, as well as adjustment and refinement to enhance responsiveness in the face of emerging challenges. It is often useful for change to be supported by active experimentation (Box 27), with 'best bet' options informed both by theory and by local knowledge and experience. Solutions may take any number of forms, depending on the nature of the challenge. Addressing some challenges may require additional financial resources from the community or outside actors; other types of challenges may require that solutions be renegotiated to reconcile the interests of different stakeholders or interest groups.

> **Box 27. Experimentation is key to problem-solving in PAR: An example from Mafungautsi State Forest, Zimbabwe (T. Maravanyika)**
>
> At Batanai, one of the adaptive collaborative management project sites at Mafungautsi State Forest, broom grass collectors realized that their grass was getting depleted over time. Resource users were using two methods for harvesting the grass: cutting the grass with sickles, and uprooting (or "digging"). They suspected that one of these two harvesting methods was unsustainable. In an effort to learn together about sustainable methods of harvesting broom grass, the resource users decided to conduct an experiment in Machije wetland, where they harvested the grass. The experiment was conducted in two small plots in the wetland area by broom grass resource users and the Forestry Commission officer. In one of the plots, resource users harvested grass by digging, and in the other plot they harvested the grass using sickles. They then monitored to see how the grass was growing in each of the plots. In the seasons that followed, no new grass germinated in the plot where grass was harvested by digging. Instead, a new grass variety which could not be used for making brooms emerged. The resource users concluded that the best method for harvesting their grass without depleting it was by cutting. They then came up with various strategies to promote the use of cutting as a harvesting method.

Devising workable solutions will generally require building upon local experience and/or relevant bodies of theory (see Box 22). It is often not possible to predict the kinds of challenges that will arise, nor the type of solutions that will be effective in addressing these challenges; hence, a large dose of creativity and resourcefulness is required. Putting the necessary conditions in place to foster this resourcefulness – active consultation with local stakeholders on how to solve the problem, teams composed of specialists from different disciplines and institutions, budgeted time for brainstorming at community and team levels – also helps. Frequent monitoring and evaluation is also essential for enabling the identification of challenges and addressing them to keep the momentum going. This is particularly true since building the social capital required to mobilize action and sustain stakeholder interest takes time, while enthusiasm and good working relations can be quickly lost through poorly managed change processes.

Key aims

The main objectives or aims of actions structured to support the change process include the following:
- To ensure that the planned activities are implemented;
- To resolve problems as they emerge, so as to secure short- and long-term benefits for and with communities;
- To build the capacity of community members to manage implementation, resolve conflicts, and sustain collective action;
- To enable inclusive involvement of community members through reflection on levels of participation and the effects of the occurring changes on the target beneficiaries;
- To enhance local ownership in anticipation of phasing out; and
- To build confidence, in all actors, on the ability to effect change on their own.

Core processes

Key processes used in facilitating change include these:
- Mobilizing resources to try out planned actions;
- Giving local communities a leading role in managing the implementation of planned activities, and building the capacities required for effective implementation (including organizational skills);
- Developing a local mechanism for resolving implementation problems;
- Managing the logistics for implementing planned activities;
- Mobilizing and making strategic use of appropriate tools (see Table 6, below);
- Devising experimental designs to try out options in the change process; and
- Following up with researchers, service providers, or other external stakeholders to ensure they follow through with their commitments.

Communities may need support from outside actors in developing effective organizational skills. For example, if community representatives are required to participate in certain activities, there is need for the PAR team to assist communities in selecting people with good leadership qualities (including impartiality and likelihood of representing all local interest groups) and to ensure that these representatives understand their roles (e.g. communicating to the broader community through report back meetings).

Examples of how each of the steps can be facilitated are highlighted in Table 6.

Table 6. Processes associated with the implementation phase, and associated tools

AIM	TOOLS
Resource mobilization to try out planned actions (if not already done in the planning phase)	• Appreciative inquiry (to identify local resources to support implementation) • Development of a resource mobilization plan (to mobilize local and external resources) • Monitoring implementation of the plan (for instance, communicating with those who promised to provide resources when they fail to do so)
Giving local communities a leading role in managing the implementation of planned activities	• Clarification of local roles and responsibilities, and mobilization of local human and financial resources and materials (a process that starts during participatory planning) • Capacity-building workshops on: good leadership, group management, project management (finance and administrative procedures), and other topics of interest to stakeholders
Developing a local mechanism for resolving implementation problems	• Capacity-building workshops on resolving problems and conflicts • Creating local committees to manage conflicts or problems that arise during implementation
Managing the logistics for implementing planned activities	• Clarifying in detail the logistics required to implement all activities, and ensuring that these needs are met on time
Devising experimental designs to try out options in the change process	• Capacity-building workshops on the principles of formal experimental design (replicates, controls, etc.) • Planning workshop to identify local experimental methods, brainstorm on the most appropriate design (whether formal or informal[1]), and plan for implementation
Following up with researchers, service providers or other external stakeholders to ensure they follow through with their commitments	• Office visits by designated local leaders

[1] This often consists of trying one "best-bet" option and monitoring changes occurring as it is implemented and adjusted over time, but may also include local experimental methods with less rigorous application of experimental design principles (e.g. without controls).

5.2.4.2. Monitoring, Evaluation, and Adjustment

Monitoring and evaluation (M&E) of PAR activities that are under way is perhaps the most fundamental element of managing change, and thus PAR as a whole, as it helps people to learn. Monitoring is a continuous process of collecting data on the implementation and performance of the project (process and outcome). Evaluation consists of periodic reflection, involving the interpretation and judgement of data from monitoring. This helps to determine whether the project is achieving its objectives and to assess the efficiency of strategies being used to achieve the objectives. M&E allows successes to be identified and built upon, and challenges to be identified and addressed early on, to avoid poor results or loss of momentum (see illustration in Figure 8). Lessons derived from failures are often more important than those derived from successes and are essential for making improvements in the ongoing change process. Accepting failures as an integral part of any change process may be particularly important for processes such as climate change adaptation, which play out over long time periods, as it may help to reduce risk aversion – thus giving people courage to "fail" temporarily in the pursuit of longer-term goals.
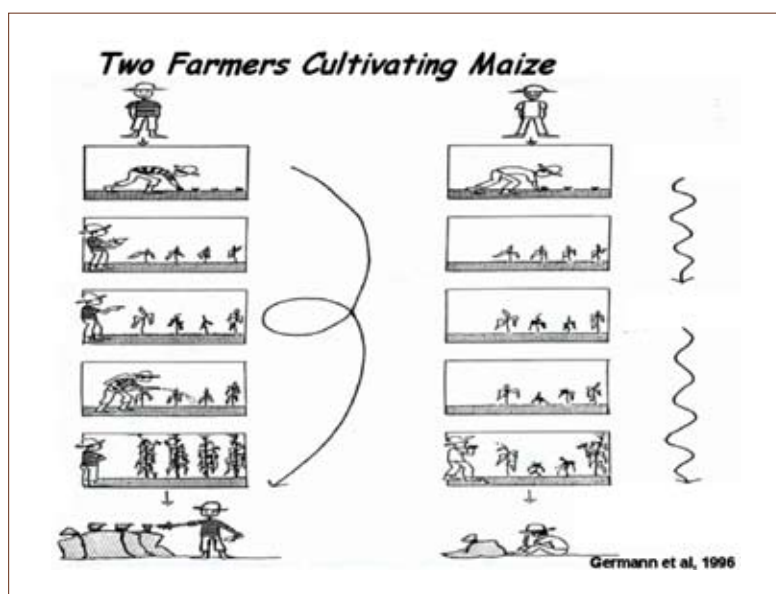
Two farmers cultivating maize

Figure 8: Illustration of the importance of monitoring and evaluation.

In the absence of monitoring, both the "action" (reaching development or adaptation goals) and "research" (learning lessons from the change process) will suffer. The likelihood of achieving established goals will be undermined due to the failure to adequately identify and address problems as they emerge. This is akin to a sailboat "staying course" despite a change in the wind, which will inevitably lead to the boat going off track and missing the destination. Yet, monitoring is also crucial for its role in offering a platform for deliberation and social learning that would otherwise not take place.

Like planning, monitoring should be done at two levels that feed into each other: a) among stakeholders involved in a change process (which we will call participatory M&E); and b) project-based monitoring. Within the two levels, monitoring should be done to check if proposed activities have been carried out, to assess the outputs and outcomes, and to check progress toward the overall goal. Outcome Mapping (OM) can be used at both levels to document intermediate outcomes in the form of a project's influence on attitude and behavioural change of key stakeholders (Earl et al. 2001). However, many projects or PAR groups need to also document changes in livelihoods or in the biophysical environment. OM is therefore not a stand-alone tool but should be used in combination with other tools.

Participatory M&E (PM&E) is carried out by the actors in the change process themselves. In this case, monitoring helps to evaluate progress in implementing the activities articulated in work plans, creates an opportunity for proactively identifying opportunities for facilitating change, and helps to build the social capital and trust required to sustain change. PM&E is intimately linked to the visioning and action planning processes and promotes self-reliance in decision-making and problem-solving by local actors. It offers new ways of assessing and learning from change that are more inclusive, and more in tune with the views and aspirations of those most directly affected (see also Estrella et al. [2000] and Guijt [2007]). The shift in thinking to PM&E has been prompted by

* the surge of interest of participatory appraisal and planning, a set of new approaches that stress the importance of taking local people's perspectives into account;
* pressure for greater accountability, especially at a time of scarce resources; and
* the shift within organizations, particularly in the private sector, toward reflecting more on their own experiences and learning from them.

Project-based M&E involves periodic monitoring by the action research team. It is a very important step for action research, as it helps the action research team to study the process through which change takes place among social groups. Both formal monitoring (for the purpose of verifying the effectiveness of project implementation, often for the sake of donors or outside actors) and informal reflection within the research and development team are involved. Formal monitoring involves analyzing and reporting on progress at the level of activities, outputs, outcomes (which should reflect specific objectives), and progress vis-à-vis the overall objective. Informal reflection is focused on self-evaluation of the team's role in facilitating change (using the process documentation tool), thus providing an opportunity for continuous self-improvement. This ensures that lessons are actively distilled and internalized by the team, leading both to improved strategies for facilitating change and to derivation (and documentation) of lessons for widespread sharing. The plan for monitoring and evaluating the change process by the research team is closely linked to the action research

protocol, and enables the action research hypotheses and approach to be monitored and evaluated. Both forms of project-based M&E are useful in helping the project to report progress to the organizations that support it and to the beneficiaries.

While stakeholder-based monitoring is always participatory, project-level monitoring can be either top-down or participatory. Participatory monitoring at project level may take the form of self-monitoring within the R&D team or the use of participatory methods within formal project-monitoring systems. The differences between conventional (top-down) M&E and PM&E are presented in Table 7.

Key aims

Objectives of monitoring progress include the following:

- To evaluate the extent to which planned activities have been implemented;
- To evaluate levels of interest and involvement of different social groups within the community and other stakeholders;
- To verify whether we are on track, relative to desired changes;
- To identify any unintended positive and/or negative outcomes or impacts;
- To enable self-evaluation by the research team;
- To identify the extent of changes occurring, who is concerned about each of these changes, and why;
- To raise awareness among communities and other stakeholders on the impact of their actions on progress made toward achieving the desired change; and
- To enable the research team to identify concrete lessons on what change processes seem most effective in enabling change and enhancing adaptive capacity in the face of climate change.

Table 7. A comparison of conventional and participatory monitoring and evaluation

	Conventional M&E	Participatory M&E
Main audience	Donors and policymakers with interest in the development intervention	Participants in the change process (focus on ensuring local relevance and benefits of the monitoring system); external use also possible
Core purpose	Upward financial and technical accountability; management support for senior staff	Strengthening technical and organizational capacity for self-directed development; sharing perspectives; enhancing motivation
Who controls the system	Project managers; external facilitators and/or donors	Participants in the change process (local residents, supported by R&D team and/or skilled facilitator)
Role of beneficiaries	Provide information	Varying degrees of involvement in design and adaptation of the methodology, collection, and analysis of data, sharing findings and translating these into actions
Perspective on flexibility	Initial evaluation system is considered valid for the duration of the development intervention; rarely is the system revised	Indicators and M&E process is adjusted as needed (as stakeholders come and go, contexts change, information needs change, strategies shift, etc.)
Which data are collected	Indicators defined externally that relate to the project's aims	Indicators derived from stakeholder information needs
Perspective on information quality	Focus on seeking objectively verifiable data (often quantitative) for assessing relevance, effectiveness, efficiency, sustainability, and impact	What counts is locally relevant information (quantitative or qualitative); hence the necessity for information needs to be co-identified and negotiated

Core processes

The foundations of the M&E process are often set during previous stages of the action research and PAR processes. When conceptualizing change, indicators of progress toward the desired vision are identified, and boundary partners (persons or organizations that the group or project seeks to influence and with whom they interact directly) and the type of changes expected or desired from them are also identified. At the diagnosis and baselines stage, a baseline for the indicators identified would also have been set. At the action planning stage, specific targets for activities, outputs, outcomes, and progress toward the vision will also have been established and a result chain that links the various elements would have been conceptualized.

While a large number of tools can be used to help in monitoring, evaluation, and adjustment, a set of key processes may be defined to assist the team in assessing progress. These include

- Reviewing performance targets (for activities, outputs, outcomes and conditions);
- Reviewing markers and/or indicators[22] related to the agreed targets;
- Agreeing on how to collect relevant data to monitor the performance of indicators;
- Agreeing on data collection responsibilities;
- Collecting data and recording appropriately;
- Collective analysis of data or information;
- Comparing actual implementation with what was planned – what changed and why?;
- Drawing lessons and feeding them back into the implementation process (for example, adjusting the sequencing of steps, actively engaging new participants, or adding activities to capture emerging opportunities; and
- Adjusting the action plan to incorporate new activities, roles, and timelines.

Table 8 summarizes some of the activities and tools used for different types of processes.

Table 8. Activities and tools for monitoring performance and adjusting work plans

PROCESS	ACTIVITIES / TOOLS
Develop or review performance targets[1]	Preliminary M&E planning workshop: Develop or review performance targets linked to the vision
Develop or review indicators and progress markers	Preliminary M&E planning workshop: Develop or review progress markers through Outcome Mapping; use of "Expect to see; Like to see; Love to see" technique to identify indicators (Box 21)
Agree on how to collect relevant data	Preliminary planning workshop: Agree on data collection techniques
Agree on data collection responsibilities	Preliminary planning workshop: Agree on who should collect which data
Collect data and record appropriately	Fieldwork: • Participant observation (daily, at set intervals, or mid-season) • Measurements / recordings • Exchange visits • Recording of critical events – e.g. hailstones • Field visits (researchers) • Sketches and maps • Photographs, motion pictures, audio recordings
Undertake collective analysis and interpretation	Periodic M&E meetings: • Group dialogue in plenary or small groups to reflect on the data • Choice of tools (for displaying and interpreting information: graphs, ladders, pebble games, summaries, sketches)
Compare actual implementation with what was planned	Periodic M&E meetings: • Progress evaluation (based on activities in the work plan) • Performance documentation (based on agreed indicators at every step, using participatory M&E) • Use of process documentation guide by the R&D team
Draw lessons and feed them into the change process	Periodic M&E meetings: • R&D team meetings • Process review and replanning workshops
Adjust action plan	Periodic M&E meetings: • Outcome mapping – using Monitoring worksheet • Adjust M&E plan to reflect new or adjusted activities

[1] This will depend on whether indicators and performance targets were set at the time of visioning and planning.
While this is ideal, stakeholders will often show fatigue at prolonged diagnostic and planning processes and implementation may need to commence before such indicators are established. In such a case, the first stage of M&E (M&E planning) must come earlier on in implementation just as the first actions are being initiated.

22 Indicators should be SMART: specific – must be expressed in concrete terms: measurable – should be defined quantities and levels of quality; acceptable – should be agreed upon by all partners; realistic – the targets must be achievable and can be accomplished in the given context, in the time and with the means available and; time specific – a time period should be set upon which targets should be achieved.

Both qualitative and quantitative tools can be used for collecting data for the monitoring and evaluation process. Examples of such tools are presented in Table 9.

Table 9. Data collection tools for the monitoring and evaluation process

Data collection tools for quantitative indicators	Data collection tools for qualitative indicators
Surveys (formal questionnaire) Household register Secondary data (e.g. from government service departments) In-field monitoring reports Semi-structured interviews Team register	Focus group discussions Individual or key informant interviews Case studies Video and photo documentation (illustrating change before and after) Minutes of meetings Direct or participant observation

For the monitoring process, a monitoring journal is a useful tool for recording information collected. An example of such a journal is given in Table 10.

Table 10. Example of a monitoring journal

Milestone / Marker / Indicator	What happened?	Date	Lessons Learned / Corrective Measures

Based on the outcomes of monitoring, work plans are adjusted to enable:

- Clarification of roles, people responsible and timelines for implementation for all new activities planned;
- Agreement on how performance can be improved upon;
- Alignment of activities with current resources, changes emerging from within the group or from the external environment, and the needs and preferences of different stakeholder groups;
- Evaluation of progress made in devolving the change process to local stakeholders, so that activities are set to continue when the project phases out;
- Enhancement of the effectiveness of the research team in facilitating change and/or doing research (actively analyzing and documenting the change process)

Several tools can be used for reflection and for display of the monitoring results. These include
- Checklists
- Before-after comparison tables, using phases of the moon to represent time where illiteracy rates are high
- Spiderweb diagrams
- Scorecards
- Graphs showing evolution of key indicators over time

For a detailed description of how participatory monitoring and evaluation (a core tool of monitoring and adjustment) is carried out, see Box28.

> **Box 28. Participatory monitoring and evaluation (from German et al. 2007)**
>
> **A. Identification of local indicators of importance to each stakeholder**
>
> The objectives agreed upon during participatory planning become the "guiding star" for PM&E, as reflections on progress should relate to what the participants are striving to achieve. During this meeting, local indicators that will be used to monitor progress toward agreed objectives are then identified by asking, "If [PAR topic] is successful, what changes will you see? What will be different in [two months', six months', and two years'] time?" Identification of local indicators should take into consideration the most important indicators for different groups by breaking the group down by stakeholder or gender, or being sure to actively solicit indicators from both groups within larger fora.
>
> **B. Periodic participatory monitoring to assess progress and replan**
>
> For periodic participatory M&E meetings, the following approach has been used in African Highlands Initiative1. Open-ended exploration of progress on the theme, making sure that all participants are actively reflecting on progress and sharing their perspectives. This can be done by soliciting participants' replies to the following set of questions:
>
>   (i) During planning, we decided it was important to meet periodically and evaluate progress to see if anything else must be done to ensure that we are effective in [reaching objective x]. In your opinion, what has gone well? What about the other decisions? What do you think has gone well?
>   (ii) What has not gone well?
>   (iii) What should be done to address [problem y]? What else could be done?
> 2.   Assess progress using indicators, choosing one indicator at a time and asking, "You mentioned that if we are successful, we will see [change x]. Have you noticed any changes?"
> 3.   Assess whether additional actions are required:
>   (i) If changes are good, ask, "Is the observed change enough, or does more need to be done?"
>   (ii) If no change has been seen or some changes are negative, ask, "What else needs to be done to ensure we see [change x] in the future?"
> 4.   For identified activities, develop a work plan as follows:
>
> | Activity | How | Who | When |
> |---|---|---|---|
> | | | | |

Based on the outcomes of monitoring, work plans are adjusted to enable
- Clarification of roles, people responsible, and timelines for implementation for all new activities planned;
- Agreement on how performance can be improved upon;
- Alignment of activities with current resources, changes emerging from within the group or from the external environment, and the needs and preferences of different stakeholder groups;
- Evaluation of progress made in devolving the change process to local stakeholders, so that activities are
  set to continue when the project phases out; and
- Enhancement of the effectiveness of the research team in facilitating change and/or doing research (actively analyzing and documenting the change process).

For an example of how participatory M&E is integrated into a series of innovation cycles, see Box 29.

Box 29. Soil fertility experimentation in South Africa's Limpopo Province

The soil fertility experimentation case in Limpopo Province illustrates how farmers define performance targets and indicators. Soil fertility experiments were carried out as part of a broader initiative to help farmers improve their livelihoods by solving their own problems. Low yield was identified as one of the priority problems leading to poverty. To reach the vision of improved livelihoods, yields had to increase. Low yields were attributed to poor soil fertility, and experiments to improve soil fertility were facilitated in a four-phase cycle (Figure 4).

In Phase 1 (steps 1 to 3), farmers identified indicators based on their visions, problems, and the symptoms they could identify. The vision was to improve livelihoods through increased yields, and the problem was identified as poor soil fertility leading to low yields. The problem of poor soil fertility could be seen in the field by the yellowish colour of leaves, stunted growth of crops, and witch weed (Striga spp.) infestation. The scientist helped farmers to substantiate the problem by facilitating soil sampling and analysis. Indicators were defined based on what farmers could observe in their fields (colour of leaves, growth of crops, witch weed infestation) and soil analytical results (pH, cation exchange capacity, level of nutrients). The second phase involved the planning and preparation of experiments (steps 4 and 5). This involved selecting treatments, mobilizing inputs (materials), and designing and laying out experiments in farmers' fields. The definition of treatments was based on what farmers were doing and known ways of improving soil fertility. Most of the farmers were applying fertilizers and very few were applying manure. Manure, fertilizer, and lime application were therefore selected as treatments. Farmers were assisted to organize themselves to be able to acquire fertilizer, manure, and lime. A third phase involved farmers applying one of the selected treatments and comparing results with the conventional method, using identified indicators. Phase 4 involved monitoring and evaluation of the experiments. During the growing season, farmers observed the fields and crops, and recorded the performance of indicators identified in Phase 1. In the middle of the growing season, an evaluation event was organized where farmers visited all experiments, made observations, and discussed them – using the indicators to guide the evaluation. The experimenters also presented their observations to enable the group to evaluate the treatments. Finally, the treatments were evaluated to determine the extent to which they had contributed to improved soil fertility and improved yield. Soil sampling and analysis were also carried out to assess changes in soil properties.

*Soil fertility experimentation cycle in South Africa, Limpopo Province*
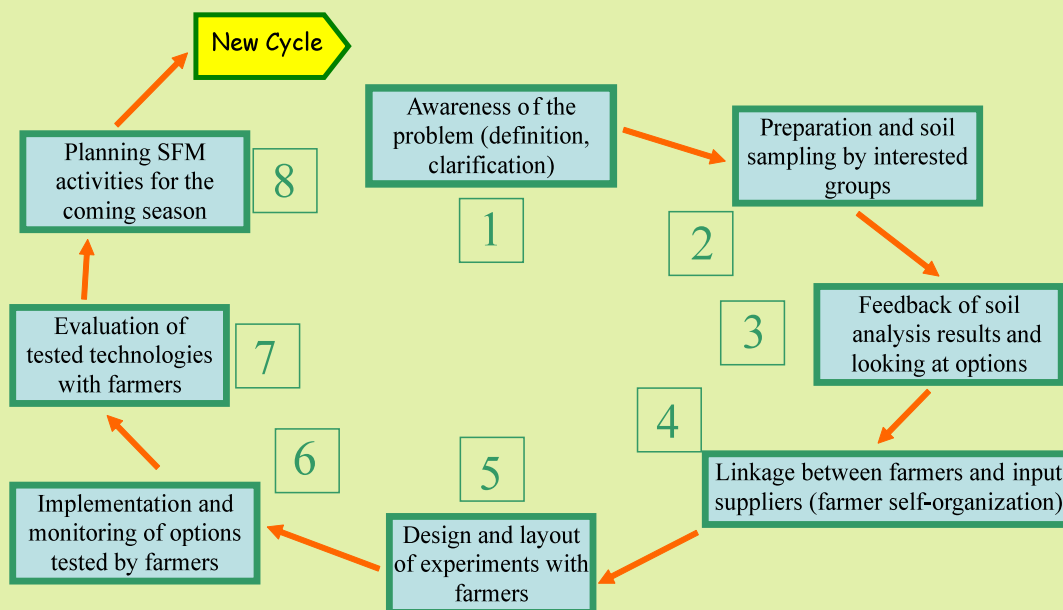
For examples of the application of PM&E in the context of climate change adaptation, see Boxes 30 and 31.

Box 30. Participatory monitoring and evaluation of an experiment carried out in Yabasso Village, Burkina Faso (ACCA-VICAB project team)

As part of a participatory experiment, the Yabasso village monitoring-evaluation committee (MEC) expanded its action plan for the 2009 growing season to include the new early-maturing Barka and Espoir varieties of grain developed by INERA, which are expected to be more resistant to shorter rainy seasons. Through this experiment, farmers were able to compare how the new and local varieties adapted to local climatic conditions. The local and improved varieties were planted on adjacent plots on village school grounds and grown using the same cultivation techniques. The MEC decided to monitor different stages of the growth cycle by making regular evaluations of the varieties' development and performance in the field. The evaluation was made on a five-point scale, with the results presented in the graph below.

The improved varieties exhibited good performance during the early phases (emergence and bolting), but poor performance during heading seriously depressed the yield. Short drought spells during grain formation lowered the yield. Since heading occurred later in the local varieties, the plants did not suffer from the drought. The farmers decided that the improved varieties had relatively poor drought resistance. This conclusion will be tested during the next growing season to explore how the timing of dry spells influences the performance of different varieties – and thus the optimal mix for coping with climatic uncertainty.
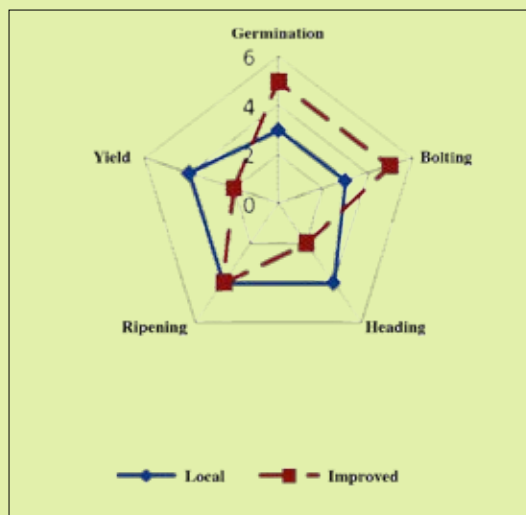
Box 31. Example of a multi-level PM&E methodology (S. Hounkponou and L. German)

An CCAA-funded project in Benin, PARBCC, has applied the participatory action research approach to the development and testing of a climatic forecasting system. The development of climatic forecasts initiates at the national level, with a National Forecasting and Agro meteorological Interpretation Committee (CNPA) composed of meteorologists, agronomists, climatologists, and agricultural economists. The CNPA develops periodic bulletins analyzing and interpreting agro meteorological and phenological data of relevance to farmer decision-making. On a bi-monthly basis, District Forecasting and Climate Change Adaptation Committees (CCPA) then meet to review the draft bulletins and adapt the advice therein to local realities to produce the final versions. These are then distributed by radio to farmers throughout the district, including farmer groups carrying out agronomic innovations with PARBCC support. This multi-level system of climate forecasting and agronomic innovations raises an important challenge for participatory monitoring and evaluation: what are we evaluating, and with whom?

Considering that the recipients or beneficiaries of any service are perhaps most suited to evaluate the work of a service provider, the PARBCC team developed a multi-level participatory monitoring and evaluation system at the levels of the CCPA and the village. At each level, participants evaluate the service provided by those above them as well as the effectiveness of their own actions. The following table summarizes the focus of evaluation at each level:

Level of PM&E	Who evaluates?	What is evaluates?	With what indicators?
District	The CCPA	−The work of the CNPA (preparation of draft bulletins) −Their own work (revision of bulletins, support to other local adaptive strategies)	Project level indicators: −Frequency of advice −Means of dissemination −Actors in information diffusion −Relevance of the advice
Village	The farmers benefiting from weather forecasting and those who experiment with agronomic innovations	−The work of the CCPA (delivery of locally adapted bulletins, support to other local adaptive strategies) −Farmers' own local adaptive strategies (application of the advice, agronomic innovations)	Quarterly PM&E: −Project level indicators (as above) −Local level indicators (linked to what they would like to achieve through the forecasts and agronomic experiments) Annual PM&E: −Farmer vulnerability to key climatic risks

For the quarterly PM&E, each group fills out a table that tracks the performance of relevant indicators across different stages in the innovation cycle. For climatic forecasts, this looks like the following:

Indicators	Baseline	**1st period** (performance of forecasts as first implemented)	**2nd period** (performance of forecasts after first methodological modification)	**3rd period** (performance of forecasts after 2nd methodological modification)
Indicator 1				
Indicator 2				
Indicator 3				

For the annual evaluation of vulnerability, spiderweb diagrams are utilized to evaluate how climate forecasting and agronomic innovation are affecting their adaptive capacity vis-à-vis each climatic risk. Whereas the above table uses local indicators (e.g. frequency with which maize gets blown over in the field) as the basis for evaluation, the spiderweb diagram utilizes climatic risks (e.g. violent winds), with each risk on an axis. For each identified change over time (e.g. 1 to 2), participants must explain why an improvement has been observed. This helps to identify the causal process involved, such as weather or climatic forecasts, farmer experimentation, or other factors unrelated to project interventions.

5.2.5. Empirical research inputs to PAR

Action research is not a substitute for conventional or empirical research. At different stages of the PAR process, it may be necessary to collect data, using conventional research methods to inform the change process or more widespread sharing. Empirical research may be used in two primary ways – as an input to change and as an instrument to measure impact of the PAR process.

5.2.5.1. Empirical research as an input to change

Deeper analysis of the system can aid in system diagnosis and the identification of points of leverage for catalyzing change; inform decision-making by stakeholders involved in a change process; informing facilitation strategies of research teams; or support evidence-based policy making.
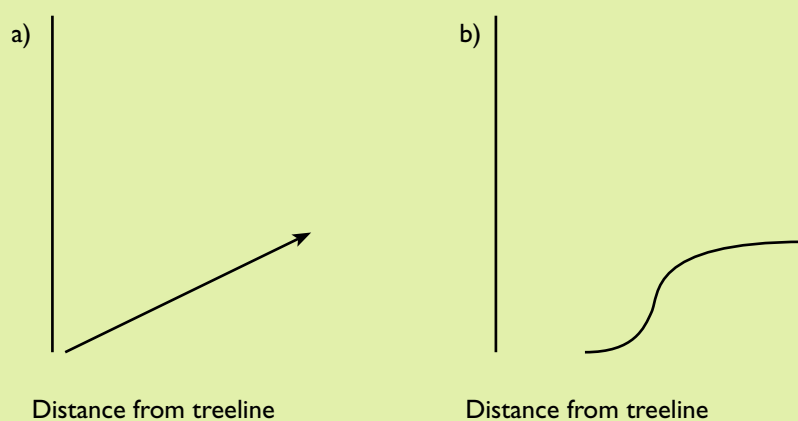
Key aims

Empirical research can be instrumental for the following tasks:

*   Strategizing interventions that are most likely to work, by identifying problems important to local residents, environmental "hot spots" (where on the landscape problems are most extreme), social conflicts, opportunities (i.e. local institutions respected by most parties), or other important guiding parameters;
*   Making variables visible to farmers, raising awareness, and mobilizing their interest in finding solutions – for example, through the use of satellite imagery to illustrate landscape changes over time;
*   Bolstering political commitment to a new approach – for example, impact assessments to illustrate the relative merits and demerits of different approaches to supporting local adaptive capacity;
*   Providing data to mediate disputes, back evidence-based policy decisions or provide "policy targets" through an empirical understanding of a system (see Box 32);
*   Empowering communities to question the actions of more powerful actors (see Box 32);
*   Monitoring change through the use of scientific indicators to complement local indicators; or
*   Systematizing local knowledge through social scientific methods in order to: (i) make highly specialized or localized knowledge available to a broader community; (ii) support multi-stakeholder negotiations, either by identifying inconsistencies in the knowledge of different stakeholders (and the need to clarify causal processes) or by ensuring that common local understandings on cause and effect are actively integrated into decision-making processes; (iii) identify "proven" solutions to similar problems embedded within local knowledge; or (iv) illustrate the utility of local knowledge to outsiders who are unaccustomed to seeing its value.

While empirical research conducted during the diagnostic phase is often used to inform preliminary interventions, the timing of such knowledge inputs often cannot be anticipated. Challenges may emerge during the course of a change process that require more formalized knowledge or data collection techniques. Having flexible budget lines can enable research teams to be responsive to such emerging needs, in addition to being a fundamental component to an evolving, indeterminate change process.

Core processes

Core processes for empirical research involve standard data collection techniques for different social and natural science disciplines, as well as strategies to ensure that empirical research findings are utilized to inform ongoing change processes. The former may include any number of tools, from spatial analysis to botanical plots, soil chemical analyses, market chain analysis, household surveys, focus group discussions, and use of historical data to anticipate future trends. What is most critical is that any empirical research carried out be clearly linked to the PAR agenda and not just an academic exercise – particularly when involving communities who may become fatigued through high demands on their time in the absence of any concrete benefits. This may be done by giving involved stakeholders the opportunity to clarify "critical uncertainties" (unknowns that are otherwise crucial to decision-making), and by clearly thinking through how the information will be used to support decision-making by stakeholders involved in change processes or by policymakers.

5.2.5.2. Impact assessment

When a project has the objective of deriving lessons for a wider audience beyond the research site, the main purpose is often to illustrate that a particular approach to change works well and to distill lessons about what to do and what not to do when seeking to enhance local adaptive capacity in the face of climate change. Yet, how does a project substantiate claims to bringing impact or to enhancing adaptive capacity? Simply stating that an approach works will not provide sufficient justification to an audience that is, considering applying lessons learned or approaches as part of standard institutional practice. How does the approach perform relative to current institutional practice? What are the benefits, and at what cost to human and financial resources are they achieved? On what basis will the arguments gain credibility for this broader audience? The answer to these questions often lies in doing two things: i) systematically documenting the change process, and monitoring how local and scientific indicators perform as the approach was adaptively managed and adjusted over time; and ii) formal impact assessments to demonstrate impacts emanating from the change process.

Key aims

The primary aims of formal impact assessments are these:

* To find out if objectives have been met and expected outcomes achieved, and to identify factors that may have hindered the full achievement of these outcomes;
* To be able to substantiate changes observed as a result of project interventions, and to identify factors determining and inhibiting change;
* To systematically test hypotheses about "what works in practice" in terms of supporting adaptive capacity; and
* To be able to assess the sustainability of outcomes and adaptive learning processes beyond the project cycle.

Core processes

Impact assessments are designed, following standards of academic rigour,

1. Control "enumerator bias" (the influence the researcher may have on information provided by interviewees), for example, by bringing in external enumerators;
2. Identify the right kinds of variables (unambiguous, measurable, and relevant to the ultimate goals of the approach being tested);
3. Establish a "counterfactual," or evidence for what would have occurred in the absence of any intervention; and
4. Facilitate capture of both intended and unintended outcomes.

Enumerator bias can be controlled by ensuring that those collecting data about the project's impact are not project personnel, and by openly guaranteeing the confidentiality of information obtained from interviewees (so they feel more comfortable expressing themselves on sensitive topics). The rapport established between project personnel and the project's stakeholders may hinder the ability of project personnel to gather unbiased information about people's perceptions about the project, while confidentiality assures them that their name will not be used in association with the information given, which enables them to speak freely. "Before" and "after" comparisons are important for assessing the impact of project interventions. These comparisons involve comparing baseline data with data gathered following PAR interventions. Yet, "attribution" remains a problem, as changes could have been induced by any number of intervening variables other than the PAR process. Counterfactuals are therefore necessary to determine which changes occurred as a direct result of the PAR process, and which occurred as a result of other contextual factors. They generally require a comparison of outcomes achieved "with" the project and "without" the project: for example, comparing the situation within project villages and in non-participating villages.

Generally, articulation of an impact pathway (Figure 9) and being able to plausibly establish connections between different stages of that impact pathway (from inputs to activities, activities to outputs, and so on) is also required to understand the causal pathways through which changes occurred. Furthermore, it is increasingly recognized that impact assessments should focus on project "influence" rather than "impact", as multiple variables, actors, and drivers often come to play in producing outcomes and impacts. The long time

over which change often plays out – particularly in the case of adaptive capacity in the face of "slow" climate change variables – necessitates measurement of intermediate stages along the impact pathway or results chain (e.g. outputs and outcomes), which are defined during the stage of conceptualizing change. Outcome mapping is specifically designed to capture such intermediate stages of influence, such as attitude and behavioural change (Earl et al. 2001). Some adaptive collaborative management practitioners refer to such pathways as "plausible causal connections" (Colfer, personal communication). The broader literature on impact assessment should be consulted when designing such studies, as this was not the subject of methodological innovation by the authors.

Operational Results   **Developmental Results**

Inputs → Activities → Outputs → Outcomes → Impacts

Low risk   Moderate risk   High risk
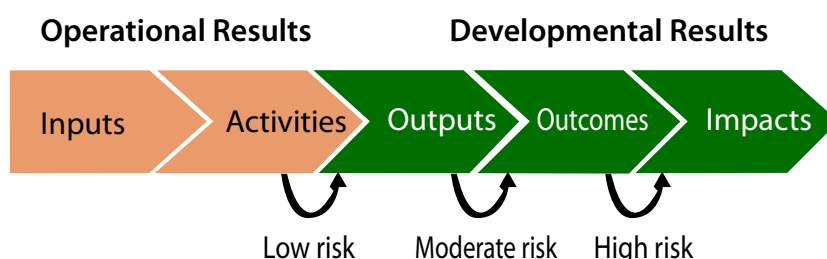
Figure 9: *Graphical representation of an impact pathway*

ª Here, risk refers to the degree of likelihood that the changes associated with that stage of the impact pathway will not be achieved.

In the case of PAR applied to climate change, the main parameters or variables expected to change might include:
- The adaptive capacity of local actors, as evidenced by anticipatory and reactive efforts to prepare and respond to extreme events;
- More horizontal and vertical sharing of knowledge and information on climate change and adaptive strategies;
- The capacity of institutions to support adaptive capacity of local actors, as evidenced by the evolution of institutional mandates and policies; resources allocated to supporting adaptive capacity; and changing knowledge, attitudes, and practices of policymakers and service providers; or
- Improved capacity of all stakeholders to learn from the past (e.g. actions or policies that have strengthened or undermined local adaptive capacity) and to anticipate the medium-term consequences of today's decisions prior to taking action.

If "before and after" comparisons are made, baselines will be required. Subsequent changes are measured against these baselines. As it is often difficult to predict the nature of changes that will occur through a PAR process, it is difficult to know which baseline data is most important. The tendency is to collect much more information than is actually useful, resulting in a tiring and overly "academic" process for local communities and other stakeholders. This problem can be ameliorated by using the visioning and planning processes of local stakeholders to identify the key parameters likely to change – and systematically measuring these variables before initiating change (through participatory baselines or empirical research). Additional variables can be included, based on researchers' understanding of the broader system and how it constrains or enables change in the variables that are of interest to local stakeholders. Variables of importance to donors or the broader audience of action research outputs should also be considered, such as the impact on household incomes, and variables related to equity and environmental outcomes. Some common variables in the case of climate change might include these:

- Proxies to assess preparedness or adaptive capacity (for example, monitoring the performance of local indicators) (see Box 33);

- Ability to better predict climate variability, as evaluated by changes in institutional or local early warning systems or shifts in local knowledge and adaptive strategies;
- Frequency and quality of horizontal and vertical sharing of knowledge on climate change and adaptive strategies, as evidenced by the presence and frequency of use of communication strategies, the tendency to share local knowledge and adaptive strategies, and the perceived effectiveness of these strategies by diverse local groups;
- Evolution of institutional mandates and policies, as evidenced by institutional policies (Are they now more inclusive of climate change adaptation strategies?); shifts in resources allocated to supporting adaptive capacity; and the evolution of knowledge, attitudes, and practices of policymakers and service providers (To what extent are government institutions responsive to local needs related to climate change vulnerability or adaptive capacity? To what extent are lessons learned from the past [institutional memory] and from local communities incorporated into government policies and support strategies?); and
- The extent to which government institutions and local actors anticipate the medium-term consequences of today's decisions prior to taking action, as evidenced by concrete cases where this has been done during the PAR cycle and outside formally facilitated events.

Box 33. *Example of a method to evaluate changes in adaptive capacity*

Past climatic events will have affected different households or social groups differently, depending on their individual and collective adaptive capacities. The outcomes of past extreme events can be used as means to reflect with stakeholders on factors that led to different outcomes for different households or groups (Why were some households or communities highly vulnerable, and others less so?). These factors known to lead to different outcomes become the variables used to operationalize adaptive capacity. They might include levels of household savings (financial capital or in the form of livestock and trees for ready sale in an emergency), the presence of protective infrastructure or social mechanisms for pulling together and sharing scarce resources in an emergency, or the effectiveness of government responses in different locations. These variables then become objects of change, while also being used to evaluate project outcomes by measuring them before and after PAR interventions. These variables may be assessed irrespective of whether there is another extreme event during the project period.

Examples of specific methods and tools that may be used to evaluate impacts are summarized in Table 11.

Table 11. Examples of methods and tools that may be used for assessing impacts associated with adaptive capacity

Aim	Method
Assessing achievement of stated PAR objectives	• Participatory monitoring and evaluation, including measuring the behavioural changes of boundary partners (e.g. outcome mapping) • Monitoring of project-based indicators related to local adaptive capacity and institutional change in support of local adaptive capacity in locations "with" and "without" PAR interventions
Assessing institutional change	• "Before and after" studies of institutional mandates, policies, knowledge / attitudes / practices, and budgetary allocations toward supporting local adaptive capacity • Outcome mapping by communities, other partners, and project personnel to assess changes in attitudes and practices • Household surveys, focus group discussions (e.g. to evaluate changes in service provision)
Assessing local adaptive capacity	• Identification of local indicators related to adaptability during past stresses or extreme events (e.g. through historical timelines) and monitoring these using participatory M&E tools • "Before" and "after" comparisons of local knowledge and adaptive strategies, and their effectiveness (using local indicators and/or empirical methods such as household surveys)

For an example of a before-and-after study based on farmers' perceptions, see Box 34.

Box 34. Evaluation of the impact of information dissemination on farm productivity in the Thiès Region of Senegal (InfoClim project team)

To highlight the impact of the participatory information exchange platform on climate change adaptation, which was experimentally tested by the InfoClim project in the Thiès Region of Senegal, the project team made a comparative study of two farmers. One farmer lives in one of the project's target villages and took the initiative to test a new early-maturing cowpea (niébé) variety he had heard about in the project observatory. This variety was supposed to be better adapted to the new climatic conditions in the region. The other farmer continued to use the local variety. No definitive conclusions can be drawn, since the comparison covered only one growing season and a very limited sample of farms. However, the table below shows that access to information had an undeniable effect on how the experimenting farmer improved the productivity of his cowpea crop.

Pre-project situation			
Parameters compared	Maguette Cissé, experimenting farmer	Saliou Lo, neighbour of experimenting farmer	Remarks
Cowpea variety grown	Baye Gagne cowpea	Baye Gagne cowpea	Both farmers grew the same local variety.
Seed purchase price	125 CFA/kg	500 CFA/kg	The difference in price is due to the difference in purchasing dates. The experimenting farmer bought seed in October when the market had plenty, which was not the case in May, when his neighbour bought seed.
Costs inherent in seed procurement (transport, etc.)	1200 CFA	1000 CFA	Transport costs include the round trip between the village and the city of Thiès.
Per hectare (ha) yield in a good year	50 kg/ha	100 kg/ha	Both farmers intercropped the niébé. The total harvest was for home consumption.
Per hectare (ha) yield in a bad year	10 kg/ha	5 kg/ha	In bad years the total harvest is kept as seed for the following growing season.
Situation after the adoption of the new variety (2009 season)			
Cowpea variety planted	Fodder cowpea (niébé fourrager)	Baye Gagne cowpea	The experimenting farmer grew an improved early-maturing variety produced by École national supérieure d'agronomie (ENSA).
Seed procurement price	2500 CFA/kg	400 CFA/kg	The experimenting farmer's neighbour bought seed in April, when prices were relatively high.
Seed procurement costs (transport, etc.)	None	1000 CFA	The improved seed was obtained from the ENSA station, not far from the experimenting farmer's village.
Rainfall during growing season	Good year	Good year	
Yield obtained	500 kg/ha	140 kg/ha	The experimenting farmer produced 250 kg on 0.5 ha and sold part of the seed to his neighbours, while his participating neighbour kept his whole harvest for home consumption.

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This example illustrates the usefulness and relevance of a comparative (with/without) approach to demonstrating impact of a given action. However, for the results to be valid, this approach it should be carried out on a proportionate sample of the experimenting population.

Learning Assessment:

The following questions are designed to help you evaluate your progress on designing empirical research as an input to PAR:

1. What are three key principles of a good impact assessment? What is the relationship between baseline studies, monitoring change, and impact assessment?
2. Did local stakeholders help to identify priorities for empirical research? If not, is the rationale for the research clearly linked to informing decision-making of one or more stakeholders, and has the research been communicated to them?
3. Have local indicators been incorporated into the design of empirical research, and given equal consideration to those indicators that researchers identified as important?
4. Do stakeholders clearly understand their role in conducting the research (if any), and how and when results will be communicated to them?

COMMON CHALLENGES

Participatory action research (PAR) facilitators and action researchers will face challenges, even if the above steps have been closely followed. Creativity and peer support will be helpful in overcoming these and other challenges as they emerge. However, it is useful to be aware of a few of the most common challenges, and how these have been overcome in real life. This section of the guide was written for this purpose.

6.1. Motivating and Sustaining Interest

One of the most common challenges to PAR facilitators is motivating and sustaining the interest of stakeholders involved in a change process. This includes motivating people to take action; sustaining interest over long periods or during prolonged diagnostic and planning phases; motivating partners while also managing their expectations so that more is not promised to them than what can actually be delivered; and institutionalizing the PAR or change process so it can be sustained in the absence of project personnel.

Strategies that can be used for motivating and sustaining interest of actors involved in a change process include the following:

1. Ensuring a common vision with widespread buy-in: If all stakeholders have internalized and identified with the vision driving change, the likelihood that they will stay engaged is much higher.
2. Ensuring early successes: Stakeholders will be more likely to continue investing time and experimenting with new ways of achieving agreed objectives if they have been successful in achieving something collectively in the early stages of a PAR process. This means that the easiest targets that bring clear social benefits should be prioritized early enough in a PAR process.
3. Combining short-term and long-term benefits: PAR processes aimed at tackling complex problems, particularly those that play out over the long run, will face the challenge of sustaining the interest of stakeholders. It is therefore important to start with activities that are more likely to bring concrete benefits over the short and medium term.
4. Collectively defining rules for sharing responsibilities and benefits: This involves transparent negotiation and communication of what is expected of different stakeholders and how benefits will be shared. It is necessary for sustaining stakeholder interest in the PAR process. When such rules have been negotiated by the participants themselves, this helps to ensure that plans are realistic − namely, that benefits are sufficiently high to sustain people's investment of limited time and energy. Defining rules also helps to ensure that expectations are communicated and realistic, and that there is fairness in decision-making. Rules should, however, be backed up by appropriate sanctions to discourage stakeholders from breaking them.
5. Ensuring transparency and clear lines of communication among all stakeholders: All decisions should be openly negotiated and communicated, in order to generate a common understanding, minimize distrust, and create opportunities to scrutinize decisions made by others.
6. Clearly communicating the importance of PAR activities to a wider audience beyond the pilot site: In cases where PAR is being conducted to learn lessons for a wider audience, it can be motivational for everyone to know that site-level experiences are contributing to the global knowledge base on how to address similar problems elsewhere. Sharing credit with partners and local communities during the dissemination stage can also go a long way in sustaining interest in PAR.
7. Having an "exit strategy": From the planning stage, the research team should be clear about its strategy for devolving facilitation and leadership roles - and the skills to execute these effectively - to local communities or other stakeholders involved in the change process. This will help ensure that the PAR process does not come to an abrupt end when the project ends or donor funds dry up (see Box 35).

Box 35: Where to after withdrawal of external facilitation? (Adapted from Kozanayi 2003)

This case study is about a three-year project in Chivi District, southern Zimbabwe, that was facilitated by a university department and partner government and non-governmental organizations. The project aimed to improve rural livelihoods by identifying, testing, and promoting technical and other options for more efficient and equitable use of common property resources within a micro-catchment area of about 4.5 km². Findings from context studies were used to identify entry points for the research project. High on the list of community needs was the desire to increase agricultural productivity in dryland crop fields through improved soil and water management practices.

A wide range of tools were used to facilitate various processes. The tools included

- Farmer exchange visits for sharing ideas and experiences;
- Leadership training as a way of generating internal drive;
- Training for transformation to infuse a problem-solving outlook;
- Visioning and scenario-building for defining development pathways;
- Multi-stakeholder dialogue forums to reconcile diverse interests among stakeholders;
- Use of demonstration and trial plots for soil and water improvement options; and
- Provision of technical and material support.

External facilitation played a significant role, and a number of projects were established in the village. These projects included soil and water conservation in both common property and individual plots; the expansion of an irrigated garden project; establishment of a micro-credit scheme; indigenous tree planting and management; and democratization of district by-laws through dialogue between district authorities and local communities. Considerable success appeared to have been achieved on these interventions during the presence of external facilitators.

As a result of increasing economic and political decline in the country, external facilitators withdrew prematurely from field sites. The various projects ran out of steam following the withdrawal of external support. A visit to the field site by one of the researchers two years after the withdrawal of external facilitators revealed that most of the projects were no longer operational. The lack of an exit strategy and gradual handover of leadership contributed to the collapse of the various initiatives. In addition, introduction of material incentives (e.g. immediate rewards for participation in projects) in the early stages of the project may have given a false picture of active participation and success. Withdrawal of such incentives translated into the withering of participation by local people. A lesson learned from this experience is that it is advisable not to introduce incentives up front, but to use them later on as a result of participants' own initiatives, and that it is important to ensure an that exit strategy is designed and put into effect at the planning stage.

6.2. Power Dynamics

Another common challenge faced by PAR facilitators is the complex web of power relations that shape patterns of participation, communication, decision-making, and, ultimately, benefits capture. There will always be actors that are more powerful than others, posing challenges to the facilitator and to other actors who may lose interest if their concerns are not taken into consideration. Power dynamics shape interactions between local communities and outside actors, as well as patterns of communication and participation within local communities themselves (see Box 36). One of the more common challenges is keeping more powerful actors engaged in a change process, particularly if they anticipate few benefits or fear that their current position of privilege will be challenged. This is a problem for both external actors and local elites. Another common challenge is the formation of new local elites that often occurs through external interventions or efforts to empower local actors. Yet, power dynamics also play out within research and development teams: for example, when contributions from junior team members are undervalued or they are given the most onerous tasks, or where certain disciplinary views are imposed at the expense of others. Good facilitators will be able to navigate through this web of influence to help level the playing field – empowering weaker actors to articulate their interests or tactfully keeping more powerful actors from dominating.

Five strategies are particularly helpful in dealing with power dynamics.

1. Empowering weaker actors in parallel with efforts to secure elite involvement: Projects may incorporate explicit strategies to empower weaker actors to participate effectively in processes that affect them, while not losing the participation of local or external elites whose involvement is necessary to effect change. Weaker actors often need activities tailored to their unique needs in overcoming barriers to their effective participation, while awareness creation among more powerful actors is often needed for them to recognize their interdependence with other stakeholders. Local or external elites can be given symbolic titles or roles to openly acknowledge their influence, while carefully ensuring that they do not dominate key decision processes (see Box 37). For example, local government actors can chair meetings, but facilitation roles for substantive tasks can be handled by the project team to ensure these more powerful actors do not have too much influence on the discussions and outcomes.

2. Developing a comprehensive understanding of local and external stakeholder groups: Prior to initiating change, it is important to understand the diversity of actors within local communities and their interests vis-à-vis the envisioned change, so they can be systematically consulted at all stages of PAR (diagnosis, visioning, planning, monitoring). The same may be said for external stakeholders who are critical to the change process. Generally, a combination of formal stakeholder analysis and informal observation (only achieved through the project having a strong presence on the ground) is most effective in ensuring that all relevant groups are identified and their interests understood. Once identified, these groups are actively involved in the diagnostic and planning phases (for example, by ensuring that each group is represented in decision fora and in monitoring) so as to understand how different groups are affected by the PAR process as it unfolds. During planning, negotiation support is often required to reconcile divergent interests (see Box 38).

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Box 38. Negotiation support to reconcile divergent views and identify opportunities for mutual gain: The case of the Sakharani Mission, Lushoto, Tanzania (L. German)

As mentioned above, during a participatory watershed diagnosis in Lushoto, Tanzania, farmers identified negative effects of boundary trees as a priority problem. As seen in earlier case studies, one of the key stakeholders identified by farmers for boundary tree management was the Sakharani Mission. In 1946, the mission bought land and established high-value trees and crops. Eucalyptus trees were planted in 1970 to secure the farm boundary from encroachment. Neighbouring farmers had noticed negative effects of these trees on their cropland and springs. This was the main reason why multi-stakeholder negotiations were pursued between Sakharani and the three neighbouring villages.

The first step following participatory watershed diagnosis consisted of visiting the mission to convey the concerns of the farmers to the farm manager. This visit was instrumental in moving multi-stakeholder negotiations forward in two ways. First, watershed problems had only been diagnosed in the minds of smallholder farmers, failing to capture the views of other land users, such as Sakharani. These preliminary meetings were instrumental in highlighting concerns that the mission had with regard to land-use practices of neighbouring households. These included the destruction of tree seedlings from free grazing livestock and decline in the mission's water supply from upstream land use practices. Given the impartiality expressed by the facilitators for the concerns of the mission in addition to those already expressed by neighboring farmers, the farm manager began to view the dialogue as an opportunity rather than a threat.

A second outcome of this preliminary stakeholder consultation was to enable the farm manager to make suggestions on how the multi-stakeholder engagement itself would be facilitated. The farm manager was asked to contribute his suggestions on the date and venue for the meeting as well as the agenda. The meeting's agenda included contributions from leaders from neighboring villages and efforts to depolarize the concerns of each party. The latter led us to develop materials for initiating dialogue that emphasized the commonalities rather than the differences in the interests of each stakeholder, as illustrated below.

Stakeholder concerns presented in plenary during Sakharani boundary negotiations

Problem	Problem faced by farmers
Competition of boundary trees with neighbouring crops	√
Eucalyptus degrading water sources	√
Decline of rainfall	√
Degradation of water sources	√
Damage caused to crops and trees from free grazing	√

While the first two concerns were the main reason for approaching the mission, the new concerns raised by the mission were also included as farmers' concerns. As already identified in the watershed exploration (but not in the context of community-mission interactions), this was a fair representation of reality, and the common concerns of both parties. By emphasizing shared concerns rather than polarized interests, the table helped set the stage for collaborative dialogue. The proposed meeting with other stakeholders was now seen as an opportunity by the farm manager to dialogue with his neighbours toward more optimal natural resource management for the benefit of both parties.

3. Developing grassroots governance instruments to govern relationships within and among stakeholder groups: Once diverse stakeholder groups are identified and planning processes are under way, it is generally necessary to have clarity on how project resource and decision-making will be governed. This might include: (i) developing governance bodies or instruments; (ii) establishing "rules of the game" clarifying how decisions will be made, how responsibilities and benefits will be distributed within and between groups, and how to ensure that diverse groups comply with agreements (see Box 39); (iii) building "soft skills" and awareness among weaker and stronger groups to level the playing field and foster mutual respect; (iv) providing negotiation support to proactively resolve tensions related to alternative visions and strategies for change and identify opportunities for mutual gain; (v) planning activities of particular interest to diverse groups, to accommodate diverse needs; or (vi) making equitable benefits the focus of all development efforts by drawing attention to who benefits or is disadvantaged by changes envisioned (during planning) or undertaken (during monitoring).

Box 39. Governance bodies and "rules of the game": Key elements of grassroots governance in the Model Forest of Campo-Ma'an (A.M. Tiani)

The Campo-Ma'an Model Forest is a 70,000 hectare landscape bearing 60,000 inhabitants and divided into seven councils. It is governed by three structures: the General Assembly, a Coordination Committee, and stakeholder platforms, and is regulated by a set of rules agreed, written, and endorsed by members in the form of a document called a Statut. Twelve platforms were created in the Campo-Ma'an Model Forest. Each platform functions according to an internal set of rules called Règlement Intérieur. The Coordination Committee provides a bridging function because it gathers representatives of all the platforms. Decisions are taken either at the level of platforms or Coordination Committees, depending on the level of their implementation or enforcement. A rural women's platform (PLAFFERCAM), led by a Présidente Générale, consists of six communal platforms, each one with about 20 to 30 women's associations. Each communal platform develops a set of activities of its own, but reports to the Présidente Générale, who is part of the Coordination Committee.

4. Leadership training: One way of managing power relations and ensuring the sustainability of PAR processes catalyzed by outside actors is to build local leadership capacity on issues related to representative governance and equity. Capacity building can move beyond one-off trainings to a "culture of change" by building observations on leadership and governance into monitoring and adjustment activities in ways that are not threatening. Strategies might include identifying characteristics of effective leadership at the planning stage, selecting leaders according to these criteria, and monitoring their performance with them directly, or focusing on areas of improvement rather than failures.

5. Ensuring that PAR is focused not only on bringing change "out there" but also within teams: This may be done by (i) using outcome mapping to plan performance targets for the team and monitor performance during implementation; (ii) encouraging flexibility and experimentation in the facilitation / action research process itself; (iii) focusing on lesson learning, not only on changes occurring "out there" but on the facilitation process itself (if PAR is facilitated by the project team); and (iv) formulating governance instruments or "rules of the game" at project team level, including decision-making processes (such as transparent planning and budgeting processes), behaviours (equal participation, sharing of arduous tasks, sharing of leadership roles and credit), or values (mutual respect).

6.3. Strengthening Local and External Institutions

Other common challenges faced during PAR derive from institutional weaknesses that can hinder effective implementation. These include:

•   Difficulty in reconciling institutional mandates with demands from communities;
•   Weak partnership modalities for coordinating actions among external organizations supporting a PAR process, and ensuring synergy in institutional mandates;
•   Failure to adequately harmonize external interventions in the same community (e.g. to ensure synergies rather than duplication of efforts);
•   Inadequate time allocation to PAR, leading to weak institutional foundations to "anchor" the PAR process;

- Weak structures and processes for local representation, resulting in the problems of elite capture highlighted above;
- Communication and mutual accountability problems, within project teams and between communities and external organizations; and
- Failure to institutionalize the PAR process in local or external organizations with a long-term presence in the site.

Ways to handle these challenges include the following:

1. Clarify institutional mandates from the outset to ensure that local expectations are not raised beyond what external partners can deliver, while enabling project teams or communities to engage new support services in areas of interest but where current partners are unable to deliver.
2. Conduct institutional analysis when selecting partners, and ensure that adequate planning is done among partner organizations to articulate a shared vision, and complementarity in skill base and mandate. Ensure that principles of "good partnership" are observed through: (i) a clear definition of the scope of partnerships and the roles and responsibilities of different institutions (as operationalized through a memorandum of understanding (MOU) or other mechanism); (ii) acknowledge contributions and intellectual property of partners through verbal recognition in public fora, shared authorship and use of logos on outputs; (iii) articulate mechanisms for coordination and mutual accountability (e.g. planning and review processes) (see Box 40).

> **Box 40. Instruments for strengthening partnerships in Ottotomo, Cameroon (C. Jum)**
>
> Another case study, from Ottotomo, Cameroon, helps to illustrate how clear roles and responsibilities of collaborating institutions were developed and helped to minimize any misunderstandings. The idea was first proposed by the forest administration (ONADEF), which requested the project to define the roles of each external organization. They felt that formalizing this through an MOU signed by each party would help ensure continuity irrespective of staff turnover. Signatories to the MOU included CIFOR, ONADEF and the Association terre et développement (ATD), a local non-governmental organization. The MOU specified the goal and objectives, areas of cooperation, the responsibility of each concerned party, the duration of the agreement, intellectual property of partners, and a declaration of how the work plan would be executed collaboratively.
>
> Having a formal MOU contributed to enhancing the relationship between collaborating institutions in several ways. Firstly, tensions between communities and ONADEF – resulting from past encroachments into the reserve – were diffused, as there was mutual agreement from the onset on the objectives of cooperation and the intent to ensure that both conservation and livelihood objectives were achieved. Secondly, envisioned activities often take more time than expected or go in unexpected directions, and partners were able to fall back on the work plan to interpret roles and to adjust agreed actions to accommodate new circumstances. Thirdly, though not a signatory to any MOU, local communities were mobilized by this formal commitment of outside actors, believing it would help stimulate solutions to their problems and improve benefit flows from forest management, as prescribed in the management plan of the reserve.

3. Build skills and mechanisms for mutual accountability between local actors and external stakeholders, both to ensure community ownership and to ensure that external development interventions are responsive to local priorities (see Box 41).

Box 41. Ensuring accountability of external organizations to local priorities: A case from eastern Kenya (E. Ontita)

The Adventist Development and Relief Agency (ADRA) initiated a food security project involving the promotion of drought-tolerant varieties of sorghum, maize, pulses, and trees; sound land preparation; early planting; and water resource development in the food-deficient drylands of Kitui South, in eastern Kenya. During project inception meetings with the community in 1998, community members insisted that while food insecurity was a serious problem in the area, their priority was water resource development and that the project needed to shift resources from the main agricultural extension activities to water development for livestock and humans. This expression of community forced ADRA to commence the extension activities only on the condition that they would secure funding for water resource activities by the second year. Community members were more enthusiastic about the water component of the project, insisted on budget realignment in favour of these activities, and were able to push for the development of more water points than ADRA had initially planned. Hence, communities essentially redesigned an external intervention. The ADRA case demonstrates how communities, when empowered, can proactively shape projects even after these have been funded and initiated. In the absence of such empowerment, a consultative and participatory planning process involving a comprehensive assessment of local needs and priorities can help project planners to maximize the chances of community engagement and project success by providing opportunities for local actors to contribute more meaningfully to project plans. Experts should deliberately tap into local people's aspirations and preferences during project conception and shape proposed activities accordingly. This helps to ensure mutual accountability, project relevance, community buy-in and smooth implementation.

4.   Build institutional capacity through a gradual approach to change, starting by tackling the easier challenges to build confidence, and moving gradually to tackle more challenging issues. It is, however, important to realize that outcomes of empowerment may not be as predicted, as illustrated by the Mafungautsi case (see Box 42).

Box 42. Empowering local communities can produce unintended outcomes: The case of Mafungautsi (T. Maravanyika)

Community empowerment processes can produce unintended outcomes beyond the scope of a PAR project by building confidence in communities' ability to effect change. This is illustrated by a case study from Zimbabwe, where, after an empowerment training workshop, most of the workshop participants at Batanai became active supporters of the opposition party, with some even becoming polling agents during the 2002 presidential elections. When the adaptive collaborative management (ACM) researchers arrived for their next field work, they began by visiting the people who had attended the empowerment training workshop. Local politicians therefore considered the researchers as advocates for the opposition party – a dangerous development. Before they could continue with their work, the ACM researchers had to seek help from district level stakeholders who later explained to the local politicians that the researchers were not involved in politics. Local community members who became activists for the opposition party also faced difficulty. For instance, the community representative for the Batanai ACM site discovered that the ruling party members were planning to beat him up and he had to run for his life. The ACM team members were in Harare and could not help him. He returned home only when things had settled down later on.

5.   Base your choice of local leadership or institutions (new or existing) through which to work on a comprehensive assessment of those perceived to be representatives of most of the diverse sub-sections of the community (see Box 43). The focus should be on downward accountability, command of respect, inclusiveness or consideration for others when making decisions, and capacity to mobilize others. Selection of the most effective and representative leaders or institutions often does not work when carried out in large community fora, where formal "protocols" will prevail (e.g. it leads to selection of leaders with formal powers but otherwise not respected by the community). It is often necessary to consult informally with different groups, and then find ways to negotiate expanded responsibilities for new leaders within the existing power structure.

> **Box 43. Identifying local institutions to "anchor" the PAR process (L. German and T. Maravanyika)**
>
> *Evaluation of local institutions and influential people by different social groups*
>
> During the diagnostic phase for watershed management in the African Highlands Initiative, an action research program operating in eastern Africa, diverse social groups (by gender, age, and wealth) were consulted on the qualities of local institutions and leaders. They were asked to evaluate them on the basis of pre-set criteria such as "capacity to mobilize the community" and "respected by the community." Often, formal leadership structures such as local government representatives were not evaluated as highly as community-based organizations, illustrating the importance of consulting widely before selecting representative leaders or institutions in community fora.
>
> *Building on existing institutions: resource management committees in mafungautsi, zimbabwe*
>
> When the resource sharing project was started in Mafungautsi State Forest in 1994, the Forestry Commission (FC) formed resource management committees (RMCs) to act as representatives for local communities. Due to the way these committees were formed (handpicked by the FC officer), and their upward accountability to the FC rather than their communities, local communities began to see them as an arm of the FC. When the ACM project started, the team decided to build on the resource management committees despite these deficiencies. Several trainings were given to build RMC capacity in leadership, including topics such as the qualities of good leaders, holding democratic, elections, and the importance of transparency and accountability to their communities. Over time, RMCs evolved into effective, democratic, and downwardly accountable institutions, and community members began to see them as their true representatives.

6. Focus on the "software" of local institutional development, which is often more important than identifying the "right local institution" to guide change. This includes processes to be used in decision-making (the "who" and the "how"), rules for benefits sharing, accountability mechanisms (responsibilities, sanctions to be applied when rules are broken), and conflict resolution mechanisms. It is often necessary to build the capacity of committees for downward accountability, through either transformation of existing institutions (see Box 34) or building new institutions to assume new roles while finding appropriate roles for existing authorities. It is also important to strengthen institutions "from below" by building awareness within the community of the roles and responsibilities of their representatives. Finally, it is important to agree in a transparent manner how benefits brought by external actors (e.g. materials, training, credit) should be distributed and/or shared within the community. This should be done prior to distributing benefits, so as to minimize suspicion and avoid elite capture of benefits.

6.4. Managing the Research-Development Tension

Another commonly faced challenge for those PAR projects wishing to distill lessons for a broader audience is to manage the tension between "doing research" and "bringing impact." These include challenges faced in implementing PAR, as well as challenges faced in validating action research findings to a larger audience. The former include the tensions created through differences in institutional mandate (research vs. development), philosophical orientation (e.g. validity of local knowledge), discipline (social vs. biophysical orientation), and role (facilitation vs. analysis and documentation). The latter include challenges associated with failing to maintain an analytical "distance" between the researcher and the object of study – a tradition strongly embedded in social and biophysical science alike. It also emerges from the perceived low validity of action research (Checkland and Holwell 1998) and the difficulty of obtaining unbiased data on (and supporting claims of) impact.

For a PAR process to be effective, both research and development partners need to have a common understanding of PAR. It is common for projects to concentrate on the "action" component, with little attention paid to the "research" component. This is one of the factors that has contributed to the limited analytical rigour in action research, and has mostly undermined its value in the minds of the global academic community. A strong research component is vital to the success of a PAR. Solid research helps in supporting successful PAR outcomes at the local level, the eventual application of findings to other locations, and meaningful contributions of practice to theory.

The roles of the facilitator and researcher should not be mutually exclusive: a researcher should have good facilitation skills,[24] and the facilitator should have strong analytical skills. This is difficult in practice, however, as most researchers are trained in extractive research methodologies that are not well attuned to process-oriented research. Few universities teach PAR as a research methodology, and while PAR is not the only approach to applying research to change, many scientists lack the theoretical and methodological grounding

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24   *It is particularly important to have a heightened sense of awareness of the often subtle social and political dynamics involved in a change process, and the delicate balance of roles between facilitator and researcher.*

to enable them to critically apply research to change processes. In some contexts, this may result in a struggle both to ensure analytical rigour in PAR and to justify PAR within the broader research community.

Another challenge related to the research-development tension relates to the realities of PAR, which is largely an indeterminate process, vis-à-vis donor requirements for prior specification of outputs and outcomes. Donors must be comfortable with specification of outputs at very general levels, with unanticipated outcomes, and with flexible budget lines to support unanticipated activities that are otherwise fundamental to sustaining change. Donors and end users of PAR outputs also need to recognize the difficulty of attributing results conclusively to project interventions. This is because outcomes generally result from the influence of multiple factors at once, and projects more often than not help to influence – but not determine – development outcomes. They must be comfortable with data that show highly plausible rather than definitive connections between stages of the impact pathway, with outcome-type evidence (intermediate stages of impact), and with projects being but one contribution of many in any particular outcome. The following recommendations will help teams to navigate the tension between research and development in PAR.

1.   Identify and introduce a research dimension to every PAR project, both to enhance impact (locally and with a wider audience) and to contribute new understanding (see Box 44).

There is the need to encourage the dissemination of change processes and the results they induced through publications. This ensures that PAR experiences contribute to a global body of knowledge on change processes, and also that a wider group of actors learn from these experiences. Publications can be produced following the successful completion of a project, when development objectives have been achieved, or when various approaches to change have been tested and found to be ineffective. Failures are as important as successes as learning cases, as they are capable of generating valuable lessons for the global development community of what not to do. In addition to publishing in academic journals, other forms of dissemination should be explored that will enable PAR findings to reach those who most need them. Thus, it is important to develop a communication and dissemination strategy that identifies end users – which often include development practitioners, policymakers, community-based organizations, and the academic community – and targets types of publications and dissemination pathways appropriate to them.

Box 44. A strong research component to PAR can support research and development goals alike (A. Daoudi)

The present case study is inspired by the first stages of a PAR project under development in Algeria, entitled "Sustainable management of the steppe routes: The participative training approach." The project conceptualizing team, made up of researchers and university lecturers, had the ambition to implement a PAR process with a very strong dimension of participation. In this process, the PAR principles and steps are retained, with the action component thought of as a collective training process aiming to find solutions to communal problems related to desertification and degradation of natural resources of the steppe routes.

As in any PAR process, all actors were engaged in problem analysis, in the identification of causes and consequences, and in the identification, evaluation, and selection of solutions. The adopted solutions were thus built jointly, starting from the participatory analysis of the causes of the problem, and the prerequisites for implementation were jointly negotiated. Thus, the action component of the project was considered by all stakeholders as an experimental phase whose assumptions were built and monitored and validated jointly. Agro-pastoralists and representatives of decentralized administrative structures who are responsible for the fight against desertification and the development of the steppe, are voluntarily engaged in an experimental process that they have co-developed and will jointly implement. Thus, the conditions were established for a deep collective learning process and for reinforcing the capacities of local actors in the adaptive management of natural resources.

Several solutions or actions, among those recommended within the framework of the project, are framed by rigorous research protocols where local actors, in collaboration with researchers, play an active role in the monitoring and evaluation process. Among these was the voluntary commitment of the agro-pastoralists to rationally use the steppe routes. This commitment was adopted following a report – validated by all actors – confirming the fact that overgrazing was one of the leading causes of the degradation of the area. The rational exploitation consists in respecting the optimum stocking densities for livestock (carrying capacity) grazing on one hectare of land, based on the availability of fodder. Optimal levels will be jointly identified by researchers and agro-pastoralists through joint assessments of fodder productivity and optimal stocking densities, according to a simplified empirical research method. In addition, the adoption of recommended practices by agro-pastoralists will also be negotiated and tested jointly. Thus, empirical research will provide an important input to decision-making, but is embedded within a broader PAR process that enables active deliberation among all the actors, local contributions to research, and improved assimilation of research results.

2.	Consider how to enhance the validity of action research in the planning stage.
3.	Encourage publications and develop a communication and dissemination strategy at the beginning of the project.
4.	Develop clear baselines to enable subsequent measurement of project impacts.

It is important to establish baselines against which subsequent changes can be measured. These should be linked to the vision of change (what stakeholders would like to see change), so that project funds are not spent on gathering irrelevant data. In some cases, researchers may wish to gather other types of data to highlight challenges and opportunities otherwise not observed or prioritized by communities, or baselines on variables of importance to donors and outside stakeholders (e.g. equity, sustainability). Baselines should be established at the beginning of a PAR process, and be linked to the monitoring and evaluation processes.

Validity in action research can be enhanced through a number of ways. The most obvious, from a scientific standpoint, is the use of "replicates" – doing action research on similar topics and using a common approach across locations – to be able to differentiate contextually induced from process-induced changes (see Box 45). However, the validity of findings may also be strengthened within any given action research case. This can be done through prior specification of an area of concern, framework of ideas, and methodology, as discussed above. It can also involve sequential comparisons, or systematic observations on how a fixed set of variables change over time as variations to the approach are tested (see Figure 10). The modifications are brought in when needed, as stakeholders reflect on limitations of the current approach and suggest new elements that need to be incorporated to enable objectives to be achieved.

Box 45. Comparative PAR to learn lessons on fostering collective action in NRM (L. German)

African Highlands Initiative conducted a series of PAR experiments to understand how to foster collective action, where it was absent, to address identified watershed problems. "Watershed problems" were characterized in many ways within and among research sites – from the proliferation of pests to the negative impacts of boundary trees on crops and water, inequitable access to technology, and the destruction of property from excess run-off and freely grazing livestock. PAR was conducted using a common set of steps (grounded in the theory of locally negotiated "collective choice rules") to address very different types of problems across multiple research sites in the eastern African highlands. The planned steps consisted of the following:

1.	Identification of stakeholders, with an emphasis on local interest groups;

2.	Meeting with individual stakeholder groups (individuals who share a common position in relation to the issue) to raise awareness, elicit their views on the problem and possible solutions, and their preferred approach to engagement;

3.	Multi-stakeholder negotiations, including:

	(i) Feedback on the identified natural resource management issue and meetings with individual stakeholder groups;

	(ii) Open dialogue (for validation and clarification of issues and interests);

	(iii) Negotiation of socially optimal solutions that do not bring harm to any given group and emphasize concessions on both sides, including agreed rules for resource management (often in the form of formally endorsed by-laws) and technologies that provide alternatives to practices restricted in by-laws; and
	(iv) Action planning: and
4.	Periodic participatory monitoring and evaluation to assess progress, troubleshoot, and restrategize.

The research was therefore comparative both geographically (different research sites) and topically (addressing different types of NRM challenges).

Local indicator 1	· · ·	· · · ·	· · · ·
Local indicator 2	·	·	· ·
Scientific indicator 1	· ·	· · ·	· · ·
Scientific indicator 2	·	·	·

Figure 10. *Illustration of sequential approach to action research*
Dots indicate how local and scientific variables perform over time as different variations of the approach are tested and evaluated.

6.5. Project Funding and Sustainability

A final challenge is how to sustain PAR, given the long time over which the processes often play out and given the limited duration of donor funding cycles. This problem will only be exacerbated for climate change adaptation, given the prolonged time scale over which climate change and human "adaptive capacity" play out. Key recommendations for managing change in the context of limited funding cycles include these:

1. Make PAR change objectives achievable: Change objectives should be highly achievable within the duration of the project. However, as small projects with limited ambition are unlikely to receive funding, it is often necessary to strike a balance between what is "doable" and what is "fundable." For very complex challenges such as climate change adaptation, one may have to settle on putting only the core building blocks in place and building stakeholders' capacity to sustain change when the project comes to a close.
2. Define the exit strategy from the planning phase: Having an exit strategy in place, in which responsibilities and capacity are gradually transferred to communities and other stakeholders, will ensure that local leadership capacity for sustaining change is built proactively throughout the PAR process. Establishing local ownership in all aspects of the project (facilitation, financing, monitoring) at the early stage will go a long way in enhancing project sustainability (see Box 46).

Box 46. PAR sustainability: The importance of local ownership and exit strategies (A.M. Tiani)

From the beginning of the Model Forest project, each village was asked to select two local facilitators (LFs) known for their legitimacy and their devotion to the community. The LFs were to become a key interface between the project and the communities. The role of LFs was to convey the interests and concerns of their constituents to local authorities and provide information that could help them to make better decisions. LFs were first trained to provide the methodology and tools for facilitating community-led initiatives. This was done in an iterative manner, consisting of three steps: i) theoretical introduction to allow the LFs to acquire or upgrade their basic scientific knowledge and analytical capacity (including basic biological and ecological information, analysis of human-environmental interactions, and social and economic analysis of planned local development activities); ii) a plan for reporting back to communities on the training course; and iii) organizing communities for learning, sharing, and decision-making related to sustainable forest management.

Local facilitators were trained in facilitation, project management, and writing. They were encouraged to go and seek information from the relevant places (markets, government ministries, industries, farms, etc.), to submit their projects directly to funding institutions, and to give regular feedback to their communities. By doing so, they became community leaders and were regularly consulted on matters of collective interest. The project ended after two years, but numerous LFs continued to play the role of advisors within their communities. They helped the community to create a palm tree plantation with its part of the annual forest royalties. Some of them had their projects funded, while others were employed by local NGOs.

3. Engage new development partners as new needs emerge: PAR projects can be prolonged beyond the envisioned time period because new issues emerge in the course of the project. Local stakeholders should be supported in linking with new organizations that have unique sets of capacities in supporting evolving change objectives. To ensure project sustainability, it is important to teach the communities how to raise funds, write proposals, and identify funding opportunities.

4. Know when and where to set boundaries: In many instances, due to the unpredictability of PAR, it is difficult to keep PAR on track with regard to project deadlines. There is often a tendency for actors to want to encompass broader areas of action beyond that which the project can readily sustain with quality. It is therefore important for the facilitator or research team to know when to draw a line for a particular area of action or inquiry that falls outside the scope or capacity of a project.

5. Identify new hypotheses to be tested in a follow-up phase: Successes and challenges in the PAR process during the first phase of project funding will lead to a sense of the critical elements that must come into play to bring more far-reaching change. These new "hypotheses" can be distilled and made explicit to donors who may be interested in seeing more meaningful results emerge through sustained project funding.

LOOKING AHEAD (NEXT STEPS IN AN ONGOING LEARNING PROCESS)

This participatory action research (PAR) Reference Guide is designed as a work in progress, to be further tested and refined through in-field application in support of efforts to enable communities to adapt to the challenges brought by climatic change. As teams move out to the field to apply the methodology, they are encouraged to be proactive about learning lessons, not only about how to support climate change adaptation, but also about how to perfect PAR tools to make them most suitable to the unique challenges posed by climate change. It is also hoped that the methodology will be tested on particular climate change adaptation challenges – and become adapted, refined, and published in new forms for new audiences.

As we move collectively out to the field to apply PAR to the various climate change challenges in our respective countries and fields, we should think about PAR more as a new form of professionalism than a particular set of methods. The aim should not be to master the tools and file them away at the end of the project, but to incorporate PAR principles and tools into the way we work as professionals in the context of emerging climate change or other challenges – by shaping how we view and approach challenges, learn lessons, and share this knowledge with others. PAR, like adaptation, is an ongoing and iterative learning process; even when results are obtained, the lessons learned need to be tested again elsewhere or formulated into new hypotheses that enable ever more significant and complex challenges to be addressed. The objective is to increasingly shift, as a research community, from a culture of understanding and dissemination to one of learning by doing. While empirical research questions remain, by far the most challenging and numerous questions are the "how" questions associated with actual problem-solving.

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ANNEXES

Sample Process Documentation Output – Participatory Diagnosis and Visioning, Commune de Kpomassé, Benin

Background

An IDRC-funded project entitled « Renforcement des capacités d'adaptation des acteurs ruraux béninois face aux changements climatiques » is seeking to enhance the adaptive capacity of rural actors through a multi-level innovation process involving climate forecasting and support to farmer participatory research. As part of the start-up activities of this project, the research team carried out a participatory diagnostic and visioning exercise in the Kpomassé Commune, in Gbefadji Village, on October 8, 2009. This process documentation write-up seeks to document the approach used, its outcomes, and lessons learned for the way forward.

Process Documentation Output

I. PRIOR TO INTERVENTION (PLANNING)

Objective: *What are you trying to achieve overall and during this particular step in the process?*

To facilitate representatives of local communities to conduct an in-depth analysis of one of the climate change adaptation challenges they have identified, and develop a vision of how this challenge can be tackled.

Approach: What will you do to achieve the objective? What steps will you take and why? Who will be involved at each step, and why?

A.   Participants:
Invite groups of farmers (women and men), extension workers, local government representatives, and rain-makers, who will carry out the activity on behalf of the community as a whole.

B.   Steps:
1. Official opening in the plenary session
(i)   Welcome address
(ii)   Introduction of local leaders, local residents (per village), and visitors (per country) by asking each group to stand up to be identified.
(iii)   Introduce the climate change theme to develop a common understanding of the goal of our meeting.

Possible questions: "Have you noticed any changes in the climate compared to when you were a child? If so, what changes have you observed? [Probe, ask another participant] "What other changes have you observed?"
Take advantage of this opportunity to introduce the goal of the meeting:
"To facilitate representatives of local communities to conduct an in-depth analysis of key climate change adaptation challenges, and develop a vision of how these challenges can be tackled."
(iv)   Tell them about the main climate-related risks identified in the region and ask them to prioritize a problem for further discussion. The problem should affect all the farmers:
-        Violent windstorms
-        Poor rainfall distribution
-        Flooding
-        Shortening of the rainy seasons
-        Pockets of drought

(v)   Ask the farmers and participants to split into three groups to hold detailed discussions on one prioritized climatic risk. Form the groups on the basis of the three categories of participants: female farmers, male farmers, and extension workers.

2. Group Work
(i)   In-depth system analysis
This may be done by using variations of questions developed by the facilitation team, to explore:
-        How the climate risk manifests in the locality

- How the people perceive the climate risk and its causes
- What changes they have observed that they think are connected to these climatic changes
- The consequences of this climate risk on their living conditions
- Whether there are other (local) factors that intensify the effects of this climate change

(ii)   Visioning
         Utilizing variations of the questions developed by the facilitation team in preparation for the field-work, ask the participants to
- imagine a situation in which the actors have learned to cope with the climate risk;
- describe the changes they see
- describe what people are going to do in this situation since things are not the same as in the past;
- depict their vision on paper (in writing or in pictures)
- direct their attention to how the climate risks are discussed).

(iii)   Choose a farmer or an extension worker to report the results of the group work at the plenary session.

3. Return to Plenary Session

(i)   Invite the representatives of the various groups to share their system analysis and the vision they developed in their group with the other groups.

(ii)   After each group has presented, ask participants what they think about:
- similarities between the different visions;
- differences between the visions; and
- whether the differences can be reconciled, and how.

(iii)   Reach an agreement on how this preliminary planning can be taken forward in the future.

(iv)   Thank the participants and close the meeting.

Aspects of process monitoring: What is going to be observed, monitored and documented as you go? What indicators will be used to assess progress?

Rapporteurs:
•   Contents of the discussion (from beginning to end, in detail)

Process documenters:
•   Changes in the approach
•   Successes
•   Challenges
•   Assessment (findings)
•   Resolutions
•   Lessons
•   Recommendations

II. FOLLOWING INTERVENTION / STEP (REFLECTION)

Approach: What did you actually do to achieve the objective? Was the approach modified in practice? If so, how and why?

•   The rainmakers were invited but they did not come, so the interview with this group was cancelled.
•   The plan was to hold a discussion on risks in the plenary session, to come up with one risk that the various groups should deal with. I have doubts about the quality of the visions because time was sho tand this discussion was superficial.
•   The visioning was carried out without adequate preparation, so certain steps were skipped.

Successes: What went well, and why?

•   Good time management.
•   Good interaction and rapport with the farmers.
•   The fieldwork was well organized.
•   Farmers' participation was very good.

- The enthusiastic participation of women, which in other contexts where we work is not seen.
- Good group dynamics.
- Very interesting day.
- To test the methodology in the field allows you to learn from both the negative and the positive points; learning from one's mistakes is an effective way to learn.

Challenges: What did not go well? What were the stumbling blocks, and why did they occur?
- Preparation time was short; as a result, the objectives of the exercise were not clear to everyone. The facilitators were not sufficiently prepared, and we lacked consensus on the steps in the facilitation process.
- Some members of the facilitation team did not study the work program for the field visit. It is important to get thoroughly involved and read the available documents.
- The feasibility of the interview checklist had not been checked.
- The translators did not do their work well.
- Considering the goal, too little time was allocated to the exercise. It is important to schedule enough time.
- The schedule was overloaded (different exercises in different sites, program was not respected, etc.), putting pressure on facilitators and affecting the quality of the work plan and the field exercises.
- Different members of the facilitation team had different views on how to carry out the system analysis.
- The notion of vision was not well explained; the farmers were misled into a dream world. It is important to prepare before getting started. Before asking the farmers what their ideal world would look like, we should have first analyzed the forces of change.
- During the meetings, some members of the facilitation team were confused about their role; everyone wanted to ask questions and produce information, even if they were not facilitators.
- The participants were all sitting on one side and the farmers on the other, exacerbating the social distance between us.
- The presentation on climate change was beyond the farmers' grasp. The discussion should be broached through angles that are more appropriate for the partners. Natural resources management is a very appropriate angle.
- Imposing paper and writing was a poor choice. Local materials should have been used to visualize the farmers' opinions. This choice prevented certain people from expressing themselves.
- The main problem yesterday was insufficient preparation. This can give the erroneous idea that fieldwork can be done with little preparation. Yet, preparation for facilitation takes a lot of time. Diagnostic and visioning is an important phase, and should be given sufficient time (one week to one month). It is important to carry out familiarization visits, prepare background information and logistics, and allocate tasks (session facilitators, general facilitator, the rapporteurs) far enough in advance.

Findings: What did you learn by carrying out this activity that you did not know before?
- There is a high level of awareness among farmers who are already experimenting with techniques and alternative solutions.
- Cropping systems are very diversified despite the small size of landholdings. Livestock production is not well developed.
- For me, the visit was an opportunity to see what progress had been made in project implementation. I was able to appreciate the results obtained. The training and "farmer field schools" were organized, and farmer-experimenters were able to identify the indicators and to monitor and evaluate the activities. I noticed that there was one highly respected resource person who is on the committee, and the bulletins and recommendations were provided and distributed by this person. He started by implementing the recommendations in the field, and the others followed his example.
- It is good for the farmers to indicate what they know. One farmer said that in former times he made less effort and earned more. Now, there are those who do not even earn enough to meet their own needs or to send their children to school. There are many people who change jobs (watchmen, motorbike/taxi drivers), which brings about socio-economic upheavals. The farmers have a considerable capacity to make analyses.
- What was missing in the exercise was lack of depth in determining change (driving forces of the system).

The Application of Participatory Action Research to Climate Change Adaptation

- The place and role of rainmakers in the climate change adaptation arena is not clear. It requires deeper study to decide how to tackle the issue.
- The extension workers wanted to bring the three groups of actors closer together (including the rainmakers). Lack of time made this impossible. The two other groups did not express any ideas along these lines.
- The process documentation tool is very useful. We have already done a lot of fieldwork but have never proceeded in this systematic manner.
- Process documentation is very important; it is the most important part because it makes it easier to share results with the other partners and to publish. This is a tool that makes it possible to pool all the material needed for bringing out maximum value from the action research.

Resolutions (Agreements): What decisions were taken by participants?
- No resolutions were produced due to lack of time. It is necessary to return to the field, build on what has been done, and carry the dialogue further for the development of action plans.

Lessons: What lessons or insights can you derive from these experiences to share with others trying to address similar challenges? What were you surprised to find out from the participants? What were you surprised to find out about the approach itself?
- Facilitation is not an easy process. It requires a lengthy learning period.
- The importance / value of learning from mistakes.
- It is important not only to focus on data collection, but also on the process and its outcomes.
- Farmers all over the world share similar sets of expectations.
- It is important to prepare (the facilitation of) fieldwork carefully.
- The approach used was not effective in dealing with the conflict that existed within the target community. Alternative means to address these challenges need to be explored.
- The facilitators should be familiar with the process and the objective for any fieldwork. They should be able to keep people focused on the goal while also allowing some flexibility in the discussions.
- It is important to have several tools available to be able to adapt the facilitation process as things change in the field. For more experienced facilitators, it may be sufficient to prepare the agenda just to a certain level, and then adapt it based on the situation in the field.
- When developing a vision on climate change adaptation, it is important to keep the participants focused on the specifics (dealing with climatic risks and their manifestations) to avoid heading toward very generic visions such as "to have a beautiful house," etc.
- The role of the rainmakers in the climate change problem is not clear. Rainmakers are farmers and have interests like everyone else. What if they stopped carrying out practices that "disturb" rainfall for their individual benefit ... could this be a solution?
- The importance of body language in any facilitation process (the seating arrangement, the management of interventions, etc.).
- Usually the participants are attracted by the contents of the exercise, whereas you are focusing on the process of implementation. It is a very good thing.

III. PRIOR TO ANY FURTHER ACTIVITY / STEP:

Recommendations: What will you do the same and differently next time? What can be done to overcome the challenges encountered during implementation?

- Adopt an approach that brings vested actors closer together. How to involve the rainmakers should be considered.
- Avoid working with translators; involve a facilitation team that understands the local language.
- Prepare the facilitation plan carefully before going out into the field.
- The techniques you use should be well adapted to local realities. It is not necessary to use paper and visualize subjects in writing because this could inhibit the farmers. Those tools are not appropriate. Facilitators need to select appropriate tools.
- The group should be subdivided into small groups to facilitate dialogue and planning.
- Schedule enough time to complete the exercises.
- Have representatives from the three groups discuss the recommendations from each of the groups, to facilitate the reaching of consensus.

Title

"Strengthening adaptive capacity in the face of climate change in Benin through a multi-level innovation process"

Background and Justification

Climate change has serious consequences for the agricultural sector in Benin and further undermines rural livelihoods. Drought spells, floods, violent winds, and other extreme climatic phenomena have become increasingly frequent in recent years. These relatively recent phenomena have undermined the climate prediction abilities of farmers and the effectiveness of ancient agricultural practices. Practices related to the management of soil fertility and moisture, and to planting dates and material (local germplasm), have become maladapted to these new conditions. Enhancing local adaptive capacity through climate forecasting and technological innovation is a key challenge facing farmers in the affected regions. In this context, the best innovations are considered to be those produced by endogenous systems in which the empirical knowledge possessed by local communities are valued in the generation of options which are both viable and oriented toward enhancing the adaptive capacity of farmers.

Objectives of the Change Process

1. To encourage farmer experimentation for the selection and adaptation of technological options likely to enhance local adaptive capacities in the face of climate change.
2. To develop and test a system of climate forecasting with agrometeorology and other relevant disciplines to enhance the predictive capacity of farmers in the face of climate variability and change.

Research Questions

1. What approaches are effective in generating agricultural practices that are at once economically profitable, locally acceptable, and capable of reducing vulnerability in the face of climatic variability and change?
2. Which design features, and facilitation and social learning mechanisms, are effective in creating a climate forecasting system that reduces farmer vulnerability to increased climate variability?

Hypothesis

The social and iterative learning process of participatory action research (PAR) will enhance both the relevance of technological and methodological innovations as well as local ownership of these innovations, thus enhancing local adaptive capacity in the face of climate change.

Approaches to Be Utilized in Facilitating Change

The objective of the project is to enhance the capacities of farmers and service providers to generate technical and methodological innovations to enhance the resilience of production systems in the face of climate change. With this in mind, the project will employ participatory action research at multiple levels to enhance stakeholder buy-in and farmer control over the innovation process. This process will consist of iterative cycles of action, monitoring, reflection, and replanning to enhance awareness among farmers and their partners of factors influencing the effectiveness of the change process and thus enhance the effectiveness of each learning cycle. The main steps in this multi-level PAR process include the following:

1. Hold consultations to identify potential actors (researchers, development practitioners, farmers, and farmer organizations) with whom to partner for farmer experimentation and agroclimatic forecasting;
2. Organize a multi-stakeholder workshop to conceptualize and plan project activities, including methodologies for facilitating participatory diagnosis, visioning, and planning;
3. Carry out a participatory diagnosis and visioning with grassroots communities to identify climatic risks and their manifestations, and to develop a shared vision of the future vis-à-vis these risks;
4. Facilitate a participatory planning process with grassroots communities and climate forecasting experts to develop detailed action plans that will help communities to cope with the climatic risks they face and to realize their visions;

5. Plan, at the project level, to agree on how to respond to community demands articulated during the participatory planning process and how to support the climate forecasting innovation system, including: i) the refinement of this action research protocol; ii) refinement of the facilitation plan for catalyzing change at multiple levels; and iii) development of a system for project-level monitoring;

6. Establish teams to accompany the innovation processes at community and regional levels through a systematic assessment of the complementarities in disciplinary and institutional roles and the negotiation of terms of reference for different team members and partners;

7. Implement planned actions through mobilization of resources and regular reporting and follow-up to team members and partners ;

8. Employ participatory monitoring and evaluation at multiple levels, and adaptation of the innovation process based on identified weaknesses – including the identification of needs for external support (e.g. training, liaising with other service providers, co-funding);

9. Continuously document the innovation process at each level, with the aim of sharing lessons learned from the project; and

10. Carry out a formal impact assessment to determine the effectiveness of the project in reducing vulnerability to diverse climatic risks once the approach seems to be working well, as indicated by the results of periodic participatory monitoring and evaluation (PM&E) on the technical and methodological innovations under development.

Information to collect (about the process and its effects)

1. Documentation and analysis of the change processes during each engagement with grassroots communities and with the climate forecasting team to record what was done, how it was done and what were the outcomes (using the process documentation guide).

2. Processes of interactions within the community, between the community and researchers, and among project partners – including the nature of their participation and progress made in the implementation of work plans.

3. Local indicators and their performance over time as a function of technological and methodological innovations under development (with the use of participatory M&E tools).

4. Empirical research to evaluate project impacts, supported by local and project-level indicators.

Outputs

1. Journal publication on the experiences in facilitating local communities and national-level actors to enhance adaptive capacity through agronomic and climate forecasting innovations (approaches utilized, impacts observed, and lessons learned).

2. Methodological guide on how to catalyze a multi-level climate change adaptation process involving local communities and external support agencies.

Anticipated outcomes

Attitude and behavioural changes:

1. Stakeholders (farmers, researchers, development community, policymakers) learn the value of partnership and downward accountability, and communities are from now on at the centre of all efforts to design, test, and evaluate adaptive solutions.

2. All stakeholders carry out monitoring and evaluation of actions undertaken and their intermediate outcomes.

Changes in conditions:

Vulnerability of communities to the top two climatic risks reduced in the project site, as determined by farmers' own indicators and from formal impact assessments.

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A Reference Guide