Adaptation

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CILSS

TOOLKIT FOR PLANNING, MONITORING AND EVALUATION OF CLIMATE CHANGE ADAPTIVE CAPACITIES

Handbook and User Guide

English Edition

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AGRHYMET Regional Centre

Niamey-NIGER

TOOLKIT FOR PLANNING, MONITORING AND EVALUATION OF CLIMATE CHANGE ADAPTIVE CAPACITIES

Handbook and User Guide

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FOREWORD

Climate change is among the most serious threats confronting every person on the entire planet, and African populations are particularly vulnerable. All livelihoods suffer from the isolated or combined effects of many climate hazards that can negatively affect their productivity, and consequently food security and populations' living conditions. Therefore, seeking to reduce the harmful effects of climate hazards relates directly to the fight against poverty. Reducing poverty and promoting human development depend in part on the reduction of greenhouse gas concentration in the atmosphere to prevent climate change (mitigation). But given that climate change is already happening and will continue to do so because of current and still-rising levels of carbon dioxide (CO2) in the atmosphere, it is also necessary to develop robust ways for natural and human systems to adjust in the face of future climate change effects (adaptation).

Discussions on climate change now recognize that in addition to efforts to mitigate the phenomenon, strategies to enhance adaptation are a priority. This recognition has led to the unprecedented proliferation of many initiatives (projects, programs and policies) that relate climate change to development efforts. These initiatives, however, have so far hardly generated the expected outcomes. The disappointing results are due, in part, to the approaches and tools that were used to identify, plan, monitor and evaluate the initiatives. A study undertaken by the United Nations Economic Commission for Africa (Somda, 2010) on the shortcomings in the field of monitoring and evaluation shows that these approaches are not sufficiently harmonized; they do not permit the drawing of consistent lessons that could improve the relevant formulation and implementation of new initiatives for climate change adaptation.

This publication aims to resolve this issue by offering insights into harmonized approaches and tools for identifying, planning, monitoring and evaluating climate change adaptive capacities. It presents the theoretical approach and includes a practical users' guide intended for development professionals, researchers and policy-makers. It contains a toolkit that harmoniously combines a number of existing approaches and tools for use at various intervention scales, and in this way defines a vision and a behavioural change strategy that are essential in the climate change adaptation process.

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ABBREVIATIONS AND ACRONYMS

ACMAD	African Centre of Meteorological Applications for Development
AGRHYMET	Agriculture, Hydrology, Meteorology (Regional Research Centre), Niger
CARE	Cooperative Assistance for Relief Everywhere
CBA	Community-Based Adaptation
CC	Climate Change
CCAA	Climate Change Adaptation in Africa (program)
CCAFS	Climate Change, Agriculture and Food Security (CGIAR Research Program)
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CILSS	Permanent Interstates Committee for Drought Control in the Sahel
CNRST	Centre National de la Recherche Scientifique et Technologique (Burkina Faso)
CRiSTAL	Community-based Risk Screening Tool-Adaptation and Livelihoods
CVCA	Climate Vulnerability and Capacity Analysis
DFID	Department For International Development (United Kingdom)
ESSD	Environmental and Scientific Services Division
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDRC	International Development and Research Centre (Canada)
IFAD	International Fund for Agricultural Development
IISD	International Institute for Sustainable Development
INSAH	Institute for Sahel
INERA	Institut de l'Environnement et de Recherches Agricoles
IPCC	Intergovernmental Panel on Climate Change
IUCN-PACO	International Union for the Conservation of Nature–Central and West Africa Program
IWRM	Integrated Water Resources Management
MAHRH	Ministère de l'Agriculture et des Ressources Hydrauliques (Burkina Faso)
MARP	Active Research and Participatory Planning Method
MSC	Most Significant Changes
NAPA	National Adaptation Programs of Action
NGO	Non-Governmental Organization
OECD	Organization for Economic Cooperation and Development
PAGEV	Project for Improving Water Governance in the Volta River Basin (IUCN-PACO)
PAVF	Participatory Analysis of Vulnerability Factors
RBM	Results-Based Management
SEI	Stockholm Environment Institute
SSO	Sahara and Sahel Observatory
SWOT	Strengths, Weaknesses, Opportunities and Threats
IUCN/CWAP	IUCN/Central and West Africa program
UNDP	United Nations Development Program
UNECA	United Nations Economic Commission for Africa
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
VAP	Vision–Actions–Partnerships
VBA	Volta Basin Authority

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Groups of expert reviewers

A group of experts made a final review of the document during a workshop for reviewing and validating the handbook. They are Dr. Jean-Marie Ouadba of the Institut de l'Environnement et de Recherches Agricoles (INERA/CNRST), Mrs. Souad-Aden Osman (UNECA), Dr. Mahamadou Gandah (ICRISAT), Mr. Seydou Tinni Halidou (ACMAD), Nassirou Mahamadou BA (UNECA), Mrs Holy Raharinjanahary (University of Antananarivo), Dr. Abdoulaye Saley Moussa (INSAH), Mr. Abdoulkarim Abina Bello (PhD student/Intern, Sahara and Sahel Observatory), Dr. Hamidou Djibo (AGRHYMET Regional Centre), Mrs. Lalla Aicha Andres (AGRHYMET Regional Centre), Mrs. Marie Olivia Abba Moussa (AGRHYMET Regional Centre).

I. GENERAL INTRODUCTION

1.1. Background

Since the early 1990s, the reality or visibility of climate change and its possible and/or real effects have led to the rapid development of tools, approaches and methods that aimed to integrate it into development policies, particularly into programs and projects in rural areas. However, it is still generally difficult to demonstrate that the integration of climate change as an issue into these actions has produced the expected or anticipated results in local communities. The main reason for this is the absence of tools, approaches and methods that would permit the collection and analysis of field data relating to the real capacities that rural communities have to adapt to climate change, despite occasional evaluations of socioeconomic and poverty vulnerabilities made before, during and after programs and projects.

In fact, various vulnerability studies have been conducted as part of the National Adaptation Programs of Action (NAPA), which identified various adaptation options in most African countries. Significant specific investigations that analyze the vulnerablity of rural communities have also been undertaken. For example, a very recent study was conducted as part of the Climate Change, Agriculture and Food Security (CCAFS) program (Ericksen et al., 2011). This identified the regions where the populations that are already suffering from chronic food problems are likely to be particularly affected by global warming. It was shown that in a large part of South Asia, including almost all of India, and in Sub-Saharan Africa, particularly in West Africa, some 369 million inhabitants in areas of intensive farming were already experiencing food insecurity, and climate change was projected to reduce the farming season in these areas by 5%. A study published in 2010 in *Nature* (*Lobel et al. 2010*) shows that, even with optimal rain, the output of African corn can decrease by 1% for each day that temperatures exceed 86°F (30° Celsius).

Therefore, there is still an important need for efforts needed that link the vulnerability status of various populations with long-term periodical and socioeconomic evaluations, as well as with response strategies. There is a need to better integrate socioeconomic information into all vulnerability and adaptation assessments. There is also a need for mechanisms to test and validate options for adapting to climate change so as to prevent the adoption of options that are inadequate or inappropriate.

The use of tools, approaches and methods for monitoring and evaluation varies from one organization to another, from one objective to another, and depends also on the technical skills of the staff in charge. Till recently, the tools, approaches and methods applied in Africa to deal with climate change adaptation did not fully integrate concerns related to climate change. And yet Africa is one of the continents where populations are the most vulnerable to and will be tragically affected by the negative effects of climate change (IPCC, 2007). These negative effects are also likely to jeopardize the achievements of development projects and programs in African countries, particularly in rural communities.

It is thus necessary to identify, develop and employ tools that enable development practioners, researchers and vulnerable populations to validate adaptation options, integrate them into development processes and then monitor and assess them. However, with the current proliferation of planning, monitoring and evaluation approaches, tools and methods, developing new tools may be redundant (Somda, 2010). So the aim here is not to develop new planning, monitoring and evaluation tools, approaches and methods focussed on climate change adaptive capacities. Rather, the purpose of this document is to harmonize existing tools and to combine them as a practical toolkit that can enhance: (1) the identification of climate change adaptive capacities; (2) planning actions within projects and programs, and: (3) monitoring and evaluation to measure a program or project's contribution to the strenghening of the adaptive capacities, which have been previously identified.

Finally, this document promotes a number of existing tools that allow for the tracking of progress made in strengthening climate change adaptive capacities at various administrative and geographical

levels (local, departmental, national, regional and international). Indeed, climate change adaptation programs may require interventions at several levels. For example, a national program will have activities in many local communities and a larger regional program will include many national initiatives. Monitoring and evaluation should be done at each level of intervention.

1.2. Content of the toolkit

The toolkit presented in this handbook has been developed within the framework of a collaborative project involving the AGHRYMET Regional Centre / Permanent Interstates Committee for Drought Control in the Sahel (CILSS), the United Nations Economic Commission for Africa (UNECA), and the Sahara and Sahel Observatory (SSO) with the technical support of the International Union for Conservation of Nature, Central and West Africa Program (IUCN-CWAP).

The tools presented here have been selected and tested in six countries: Burkina Faso; Ghana; Kenya; Mali; Niger, and Senegal. The following criteria were used to select these tools:

- their ability to take into account the vulnerablity of local communities and their capacity for climate change adaptation, either in current projects or in identifying new projects;
- the participatory nature of the tools that enables local communities to share knowledge and learn from others, and this also means adding value to development interventions;
- that they are user-friendly for stakeholders that are unfamiliar with climate change concepts and monitoring and evaluation;
- they are easy to integrate into the results-based management (RBM) monitoring and evaluation system.

These tools are grouped into modules that allow for the identification, planning, monitoring and evaluation of climate change adaptive capacities at various geographical scales. Five modules comprising 11 tools have been selected to cover the various steps of considering adaptive capacities in projects and programs.

- **Module I** defines a number of concepts that are indispensable for a sound understanding of adaptive capacities applied to populations and to the ecosystems on which they depend. This is an introductory module for harmonizing, improving and facilitating the understanding of concepts related to climate change and of how to go from theory to practice.

- **Module II** describes a selection of tools that can help project or program managers and communities analyze and identify adaptive capacities. The three proposed tools have been widely and successfully used by some organizations. They are listed here.

    - *Climate Vulnerability and Capacity Analysis* (CVCA) allows for analysis of community vulnerability and climate change adaptive capacities.
    - *Community-based Risk Screening Tool-Adaptation and Livelihoods* (CRiSTAL), which is effective for refining the analysis of communities' climate change adaptive capacities as they relate to their livelihoods.
    - *Participatory Analysis of Vulnerability Factors* (PAVF) can be applied to refine the analysis of factors that affect the vulnerability of communities faced with climate hazards.

- **Module III** includes a single tool that can be used to examine adaptive capacities from the local level to the global one. This is the Vision–Actions–Partnerships (VAP) tool, which is rolled out at the local level and also at higher levels (departmental, regional, national and global). It is used to ensure that that communities, together with the technical and administrative departments supporting them in their fight against the effects

of hazards related to climate change, have defined a common vision, identified appropriate actions to fulfil this vision, and that the partners required to support the process are on board.

- **Module IV** describes the approach that can ensure that the actions and partnerships identified on the basis of vulnerability analysis and adaptive capacities are effectively implemented. It also shows how to develop an information table for monitoring and evaluating climate change adaptive capacities. It includes the following four tools:

    - o the outcome challenges for each group of partners;
    - o the graduated progress markers;
    - o the results chain, and;
    - o the monitoring and evaluation table of identified actions.

- And lastly, **Module V** includes three tools that are effective in documenting the progress made with the actions and partnerships that have been established to increase the adapative capacities of communities to the changing ecosystems on which they depend. These are:

    - o performance indicators for the monitoring and evaluation protocol, as laid out by RBM;
    - o the outcome journal;
    - o the most significant change (MSC) that is revealed in the monitoring and evaluation of partners' behavioural changes that have come about because of the project or program.

In summary, the five modules presented in this handbook can be grouped into four categories:

- o Category 1: tools for better understanding of the concepts related to climate change and monitoring and evaluation; to conceptualize planning, monitoring and evaluation of capacities to adapt to climate change (Module I);
- o Category 2: tools that can be used to better identify and plan actions by more thorough and lucid understanding of the context; identify motives, identify and prioritize problems or areas of intervention, identify objectives, identify stakeholders to be involved (Modules II and III);
- o Category 3: tools that are effective in planning monitoring and evaluation; theorizing about the stages of change, defining indicators or graduated progress markers that are to be measured, determining and assigning roles and responsibilities (Module IV), and;
- o Category 4: tools that enable data collection on national indicators and outcomes, after their baseline situation have been established (Module V).

It has to be noted that some of the tools can be included in many categories, but the groupings have been made for practical and mainly didactical reasons. Thus, many tools presented in Module II can be used not only to assess and analyze adaptive capacities, but also to prioritize hazards or areas of intervention, define problems and identify the gaps in adaptation mechanisms. As well, the VAP tool (Module III) allows for comparisons and assessments at various levels, from local to global. But it is also an introductory tool for planning and assessment.

This document is intended to be support tool for development and research professionals and policy-makers. It should also be considered as a complement to traditional monitoring and evaluation approaches, tools and methods used in results-based management. For the sake of simplicity and length limitations, the tools selected are not comprehensively developed in this document. Users can, however, refer to the reference documents listed at the end of the handbook (the first part of the document)

for more details on the tools proposed here.
Finally, the tools included in this document fit into a five-step learning cycle on climate change adaptive capacities (Figure 1).

The first step suggests that before any climate change adaptation initiative, partners should identify and evaluate in a participatory manner the resources available to communities and the climate hazards that confront them. This can be achieved by combining CVCA and CRiSTAL tools.

The second step involves obtaining a better understanding of vulnerability and vision factors and identifying actions and partnerships.

The third step enables partners to agree on the outcome challenges and options they need to pursue to develop the graduated progress markers.

The fourth step gathers information on the first three steps to develop an information table and a monitoring and evaluation protocol.

The fifth step consists of establishing performance indicators and a baseline from which they can be measured.

In the sixth step, partners collaborate for implementing the action plan (or adaptation initiative) that is to be undertaken over a given period and the evaluation and monitoring tools that are to be used. This means providing information on the progress and adaptive changes that can be attributed to climate change, and the cycle starts again at the end of the action plan period or at intermediate periods during it.

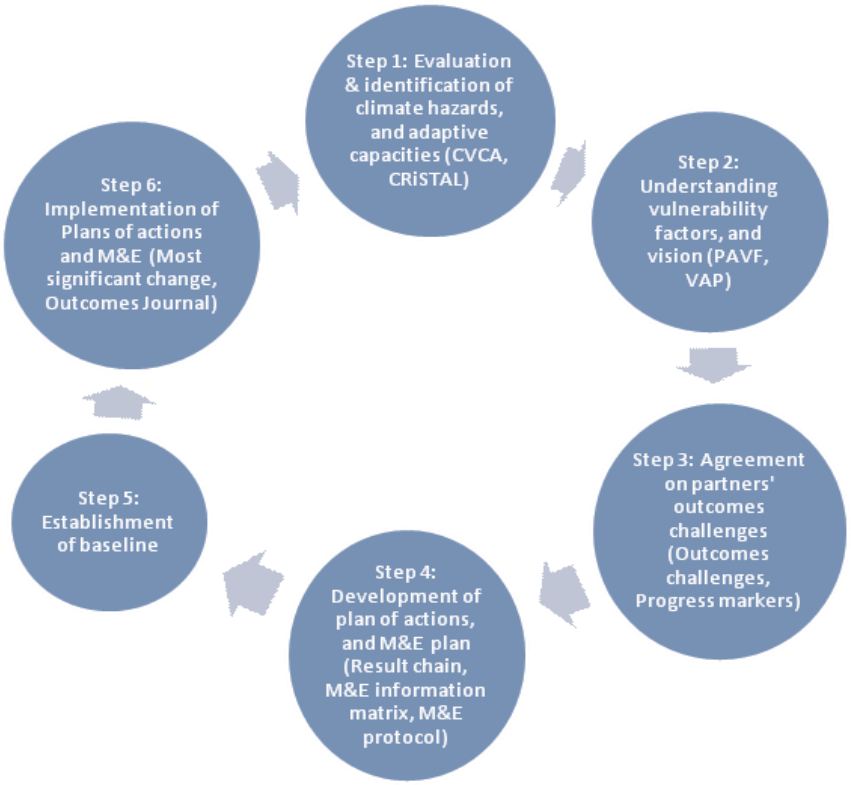


Figure 1: Climate change adaptive capacities planning, monitoring and evaluation cycle

This document is divided into two parts. The first part is meant to be a training "handbook" and the second part a "user guide".

1.3. Objectives

The global objective of the training handbook and the user guide is to promote harmonized planning and monitoring systems that integrate indicators of capacities for climate change adaptation, with a view to enhancing the effectiveness of projects and programs. More specifically, the goals are:

- to provide practitioners with planning, monitoring and evaluation tools and approaches that consider climate change adaptation practices, and;
- to strengthen their practical monitoring and evaluation capacities.

1.4. General methodology

The methodological approach used to develop this handbook and its user guide consisted of:

- conducting a study on the existing monitoring and evaluation methods and practices, including their shortcomings;
- building a basic toolkit on the basis of the above-mentioned study;
- testing and improving this toolkit within the framework of an existing project;
- conducting case studies with the improved toolkit;
- drawing lessons from the case studies to further improve the toolkit.

In addition, the methodological approach involved teasing from the general objective a number of skills required for monitoring and evaluation of climate change adaptive capacities. These skills are responses to three questions.

1. What do practitioners need to integrate climate change adaptive capacities into their project?
2. How can they integrate climate change adaptive capacities into their project?
3. What do they need to implement monitoring and evaluation of climate change adaptive capacities?

In addition to the theoretical knowledge of the concepts related to climate change and monitoring and evaluation, six specific kinds of capacities have been identified as essential to internalizing monitoring and evaluating projects and programs working to enhance climate change adaptive capacities. The identification of these six kinds of capacities involved three prerequisites, as follows.

1. For question 1, the practitioner needs to: (i) have good practical knowledge of the concepts related to climate change and monitoring and evaluation.
2. For question 2, the practitioner needs to have the capacity to: (ii) identify and analyze climate change adaptive capacities of a population or populations, and; (iii) relate adaptive capacities to the local, national or even transnational level.
3. For question 3, the practitioner needs the capacity to: (iv) develop an information table and a monitoring and evaluation protocol of adaptive capacities, (v) implement this plan through effective and simple tools for collecting and analyzing data on performance indicators and progress markers towards project outcomes, and; (vi) communicate the progress reported by stakeholders to all the project partners.

PART I: The Handbook

I. JUSTIFICATION AND PRESENTATION OF THE SELECTED AND ADAPTED TOOLS

This section looks at the origins of the tools selected for the toolkit. Indeed, almost all the tools described in the handbook come from comprehensive handbooks that have been developed, tested and validated by a number of international organizations working in the area of climate change adaptation within communities.

The analysis of these original handbooks, however, showed complementarity between the tools developed by each organization, and also that some handbooks would enable only the identification and planning of adaptive capacities, while others would enable the monitoring and evaluation of these capacities. For the first group, identifying and planning climate change adaptive capacities is not enough if the purpose is to measure the progress made in capacity building. For the second group, monitoring and evaluating adaptive capacities presupposes that stakeholders agree on these capacities, on their associated indicators and their baseline situation before implementing the project or program. Even within the same group of tools, important complementarities appeared that were used to improve stakeholders' understanding of communities' vulnerability and adaptive capacities.

1.1. Climate vulnerability and capacity analysis (CVCA)

The CVCA method provides a framework for vulnerability analysis and climate change adaptive capacity at the community level (Dazé et al., 2010). It gives priority to local knowledge of resources, climate hazards and adaptive strategies during data collection and analysis processes. Its main objectives are summarized below.

- ***To analyze climate change vulnerability and adaptive capacity at the community level***. CVCA is a method for collecting, organizing and analyzing information related to the vulnerability and adapative capacity of communities, households and people. It provides advice and tools for participatory research, analysis and learning. It also takes into consideration the role of local and national institutions, and policies that enable adaptation.

- ***To combine traditional and scientific knowledge for improving understanding of local climate change-related impacts***. The lack of information is a real challenge when working on climate change adaptation issues at the local level. To this problem is added that of data reliability and the uncertainty of climate and meteorological fore casting information. Collecting and analyzing information with the help of communities also helps to develop local knowledge of problems related to climate change and appropriate adaptive strategies.

[2]The CVCA method is based on the "enabling conditions" framework for community-based adaptation (CBA), as proposed by Dazé et al. (2010) and reproduced in Table 1. This CVCA handbook proposes issues for consideration, which help with the analysis of the information collected at the national, local and domestic or individual levels. It facilitates a participatory approach for stakeholders' analysis and collective learning.

Table 1: CARE's framework for Community-Based Adaptation *Source: Dazé et al. (2010)*

<table>
<tr><th>Hierarchical levels</th><th>Climate-Resilient Livelihoods</th><th>Disaster Risk Reduction</th><th>Capacity Development</th><th>Addressing Underlying Causes of Vulnerability</th></tr>
<tr><td rowspan="4">National level</td><td>Government is monitoring, analyzing and disseminating current and future climate information related to livelihoods</td><td>Government is monitoring, analyzing and disseminating disaster risk information</td><td>Government has capacity to monitor, analyze and disseminate information on current and future climate risks</td><td>Government recognizes specific vulnerability of women and other marginalized groups to climate change</td></tr>
<tr><td>Climate change is integrated into relevant sectoral policies</td><td>Government is engaged in planning and implementing disaster risk management (including prevention, preparedness, response and recovery)</td><td>Government has mandate to integrate climate change into policies</td><td>Policy and implementation is focused on reducing these vulnerabilities</td></tr>
<tr><td rowspan="2">Climate change is integrated into poverty reduction strategy and/or other development policies</td><td>Functional early warning systems in place</td><td>National policies are rolled out at regional and local levels</td><td rowspan="2">Civil society is involved in planning and implementation of adaptation activities</td></tr>
<tr><td>Government has capacity to respond to disasters</td><td>Resources are allocated for implementation of adaptation-related policies</td></tr>
<tr><td rowspan="4">Community level/ Local Government</td><td>Local institutions have access to climate information</td><td>Local institutions have access to disaster risk information</td><td>Local institutions have capacity to monitor, analyze and disseminate information on current and future climate risks</td><td>Local planning processes are participatory</td></tr>
<tr><td>Local plans or policies support climate-resilient livelihoods</td><td>Local disaster risk management plans being implemented</td><td rowspan="3">Local institutions have capacity and resources to plan and implement adaptation activities</td><td>Women and other marginalized groups have a voice in local planning processes</td></tr>
<tr><td rowspan="2">Local government and NGOs extension workers understand climate risks and are promoting adaptive strategies</td><td>Functional early warning systems in place</td><td rowspan="2">Local policies provide access to and control over critical livelihoods resources for all</td></tr>
<tr><td>Local government has capacity to respond to disasters</td></tr>
</table>

Household/ individual level	People are generating and using climate information for planning	Households have protected reserves of food and agricultural inputs	Social and economic safety nets are available to households	Men and women are working together to address challenges
	Households are employing climate-resilient agricultural practices	Households have secure shelter	Financial services are available to households	Households have control over critical livelihoods resources
	Households have diversified livelihoods, including non-agricultural strategies	Key assets are protected	People have knowledge and skills to employ adaptation strategies	Women and other marginalized groups have equal access to information, skills and services
	People are managing risk by planning for and investing in the future	People have access to early warnings for climate hazards	People have access to seasonal forecasts and other climate information	Women and other marginalized groups have equal rights and access to critical livelihoods resources
		People have mobility to escape danger in the event of climate Hazards		

The CVCA is designed to enrich and enhance planning by providing crucial and specific information on climate change and local vulnerability. Information collection, analysis and validation foster effective dialogue within and among communities, and with the other stakeholders.

CVCA can be used and adapted to collect and analyze information that lends itself to the elaboration of climate change adaptive strategies, and to the integration of this adaptation into livelihoods and natural resources management programs. It also provides concrete evidence that is important for climate change advocacy.

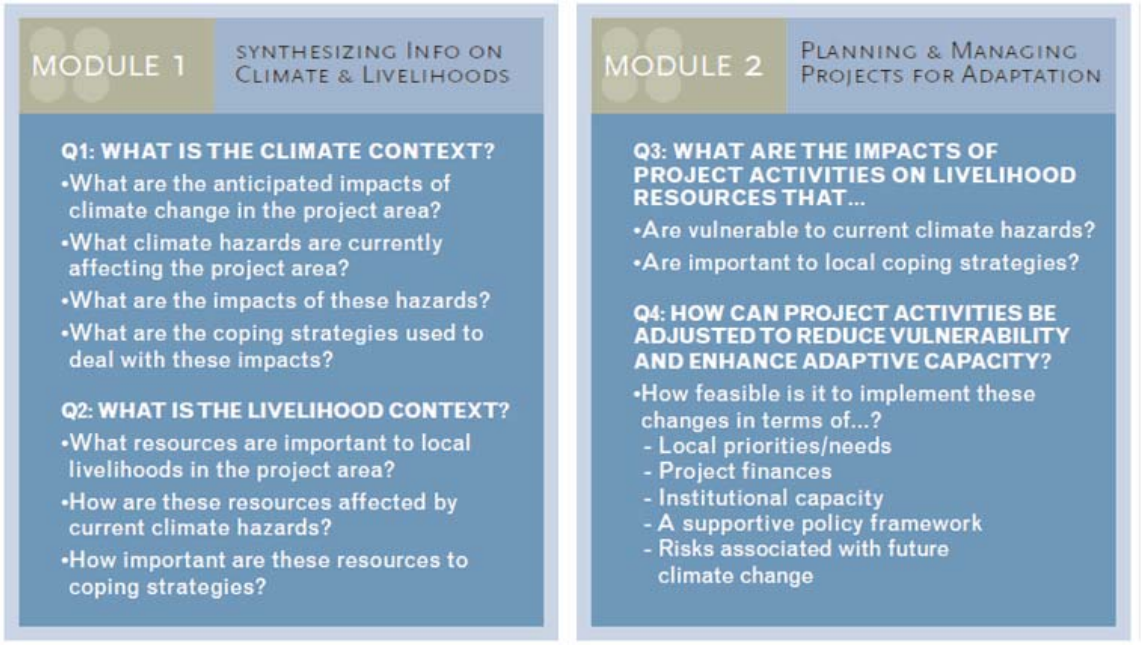
Participatory exercises and the resulting discussions make it possible to relate community traditional knowledge to the available scientific knowledge on climate change. Thus, local stakeholders will be able to better understand the impact of climate change on their livelihoods and thus to better analyze risks and plan necessary adaptations. These exercises involve the use of five tools listed below.

1. hazards mapping
2. seasonal calendars
3. historical timelines
4. a vulnerability matrix
5. a Venn Diagram to organize information logically.

1.2. Community-based Risk Screening Tool-Adaptation and Livelihoods (CRiSTAL)

CRiSTAL has been designed to help improve decision-making at the community level and in project planning and management, with the aim of maximizing adaptation possibilities and minimizing maladaptation (IISD, Intercooperation, IUCN and SEI., 2009). The tool is composed of two modules (Figure 2), each including its own series of close-ended questions.

Figure 2 : CRiSTAL analysis framework *Source: IISD, Intercooperation, IUCN and SEI (2009)*



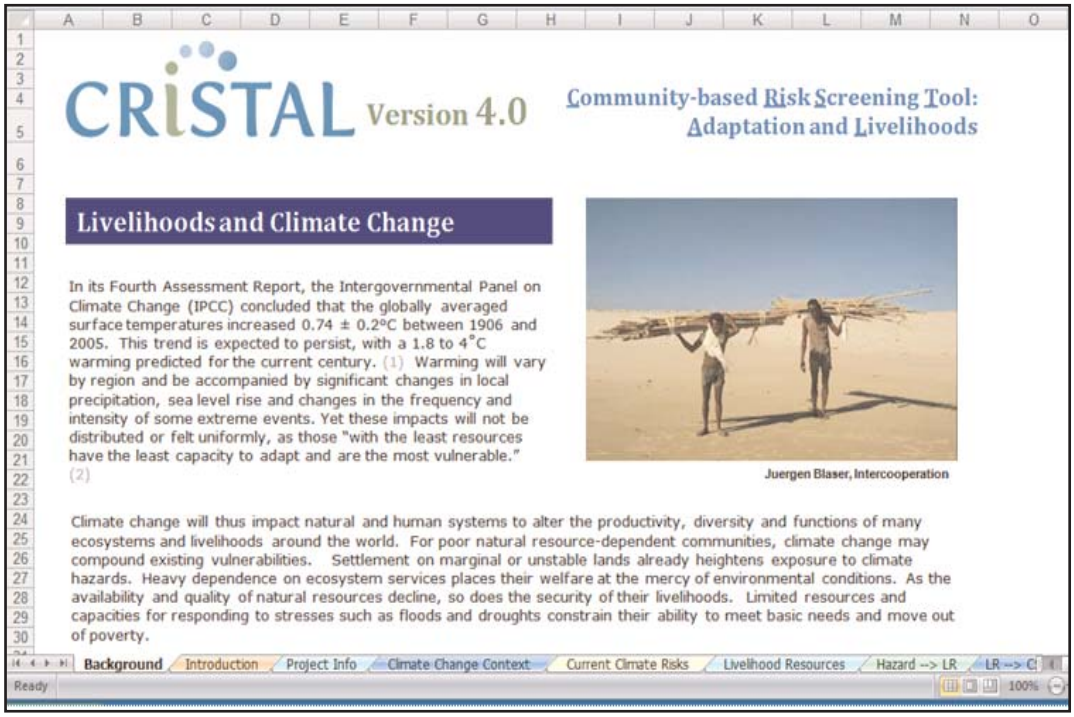
The first module entitled "*Synthesizing Info on climate & livelihoods*" aims to help users collect and organize information on the context for climate change and livelihoods in the project area, preferably through consultations with stakeholders and other participatory methods. The information collected and organized in Module 1 constitutes a basis for the analysis made in Module 2.

The second module entitled "*Planning & managing projects for adaptation*" should be completed by project planners and managers with the contribution of relevant stakeholders. Module 2 uses the information provided by Module 1 to help project planners and managers understand the ways in which project activities affect livelihoods that are either vulnerable to climate risks or important for adaptive strategies. Users can thus (re) design project activities so as to optimize opportunities to develop adaptive capacities.

Figure 3 presents the computerized interface for CRiSTAL in Excel. It includes 18 worksheets, as follows:

- four general information sheets (context, introduction, information on the project, climate change context);
- ten data collection and analysis sheets (current climate-related risks, livelihoods, risked effects on resources and livelihoods, importance of livelihood resources for each of the three adaptation risks selected, project activities, modified activities, synergies and obstacles between project activities and modified activities;
- four report sheets (climate context, livelihoods, evaluation report, and summary report).

Figure 3: The computerized interface for CRiSTAL



Note that there is high similarity between the types of data collected with CVCA tools and those of CriSTAL. It is therefore recommended that the data collected with CVCA tools be used in the CRiSTAL computerized context to facilitate analysis. Thus, the consultation phase for collecting data for CRiSTAL can be done with two CVCA tools, namely hazards mapping and the vulnerability matrix.

1.3. Outcome mapping and results chain

Outcome mapping is based on one specific type of results: outcomes as behavioural change resulting from activities. Outcomes are defined as changes in the behaviours, relationships, activities or actions of the people, groups and organizations with whom a program works directly (Earl et al., 2002). These outcomes can be logically linked with a program's activities, although they are not necessarily directly caused by them. Outcome mapping assumes that **the boundary partners** control change and that, as external agents, development programs only facilitate the process by providing access to new resources, ideas or opportunities for a certain period of time. Boundary partners are those individuals, groups and organizations with whom the program interacts directly and with whom the program anticipates opportunities for influence. Outcome mapping is done in and divided into three stages (Figure 4).

The first stage is the design of intentions. This helps a program or project establish consensus on the macro-level changes it will help to bring about and plan the strategies it will use to achieve them. It helps answer the following four questions: **Why?** (What is the vision to which the program wants to contribute?); **Who?** (Who are the program's boundary partners?); **What?** (What are the changes that are being sought?), and; **How?** (How will the program contribute to the change process?)

The second stage is outcome and performance monitoring. This provides a framework for the on-going monitoring of the program's actions and the progress of its boundary partners towards achieving outcomes. Outcome and performance monitoring is based largely on systematized self-as-

sessment. It provides the following data collection tools for elements identified in the design of intentions stage: an "outcome journal" (progress markers); a "strategy journal" (strategy maps), and; a "performance journal" (organizational practices).

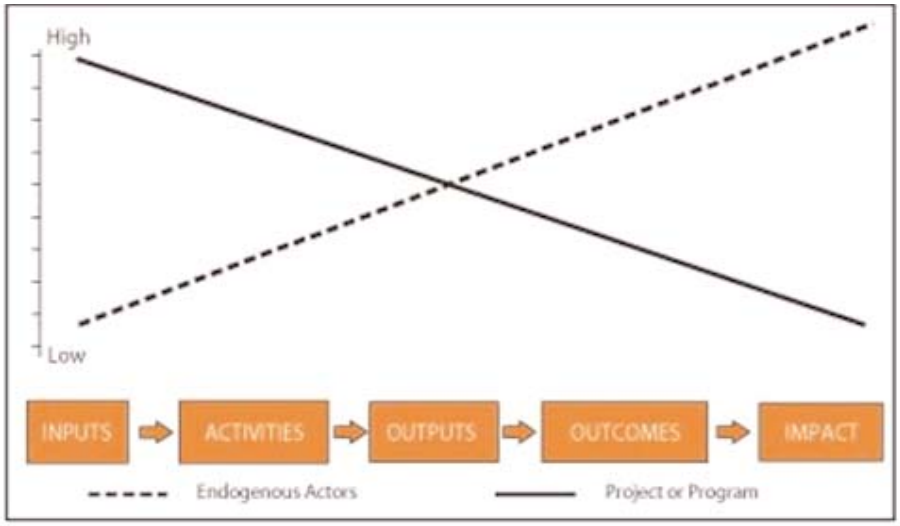
The third stage is evaluation planning. This helps the program identify evaluation priorities and develop an evaluation plan.

Figure 4: The three stages of outcome mapping *(source: Earl et al., 2002)*

Outcome mapping is presented as an integrated planning, monitoring and evaluation approach that is best used at the beginning of a program, once the main focus has been decided. It introduces monitoring and evaluation considerations at the planning stage of a program because it helps to focus on supporting specific changes in its partners. With some adaptations, its various elements and tools can be used separately or in conjunction with other processes (for example, "strengths, weaknesses, opportunities and threats or SWOT, a situation analysis or logical framework method). This has been considered in the handbook so that that projects or programs avoid having to repeat their planning processes during the implementation process, which would imply renegotiating funding.

The results chain (Figure 5) describes the succession of steps between an initiative's inputs and the outcomes expected from the initiative. It shows that to transform a problem into a solution or a result, one should have resources (financial, human, etc.) to implement activities. The implementation of activities provides the project or program's beneficiaries with outputs. The use of the outputs by beneficiaries will produce outcomes or results that will induce impacts and therefore change the undesired situation into a desired one. The main critique of the results chain is that it does not highlight the role of beneficiaries in the process of transforming problems into solutions. This is demonstrated in Figure 5, where the project or program's relative influence on outcomes and impacts is less than that of the endogenous stakeholders. It is clear that to create outcomes and impacts, endogenous stakeholders should change their behaviours and/or activities after having accepted the products provided by the project or program.

Figure 5: Relative influence along the results chain *(Source : Smutylo, 2001 cited by Earl et al., 2002)*



The added value of the outcome mapping relative to the results chain thus becomes evident. In fact, traditional impact monitoring and evaluation tools attribute the results obtained to projects. *Attributing impact only to donors mispresents or ignores the multiple endogenous contributions and conditions necessary for sustainable development*. Outcome mapping permits consideration of how others' contributions or participation (including donors, beneficiaries, other organizations and participants), and environmental factors or adaptations have achieved results for development. It also allows implementers to measure the level of appropriation of the project's activities by organizations and endogenous organizations. It thus considers the external interventions that contribute to development.

1.4. Results-based management (RBM)

According to the United Nations Development Program (UNDP, 2009), results-based management is "an applied management strategy or method rolled out by an organization to ensure that its processes, products and services contribute to the achievement of clearly defined results". RBM provides a coherent framework for planning and strategic management by improving learning and empowerment. It is also a powerful management strategy that can bring important changes to the way that organizations function, focusing as it does on improving performance and achieving results. This includes the definition of realistic results, the monitoring of the progress made in achieving the expected results, the integration of the lessons learned into management decisions and the communication of performance information. In this definition of RBM, it is no longer possible to dissociate the three steps, that is, planning, monitoring and evaluation.

In the same way, planning, monitoring and evaluation processes should aim **to achieve results**, rather than just to complete all the activities following a determined schedule. These three steps have their respective advantages which are complementary.

For example, planning enables project or program implementers to:

- know what has to be done, and when;
- help mitigate and manage crises and facilitate implementation;
- better focus on priorities and make more effective use of time, money and other resources, and;
- help define what a successful operation is.

Monitoring enables the project or program implementers to:

- know what has been done, and when;
- collect information on crises;
- know the project's priorities and keep tabs on how resources are used.

Evaluation provides implementers with information that enables them to:

- assess whether what had to be done has been done in time;
- know the level of significance of crises and facilitate the project implementation;
- ensure that the project really focused on priorities and that resources were used efficiently;
- measure the level of success (failure) of an operation and draw lessons for the future.

The most important aspects of a **planning process** are the following:

- a consensus on the purposes, objectives and vision for the future;
- stakeholders' commitment and motivation, and;
- clarity of the program implementation and management process.

Following planning, a **monitoring and evaluation** framework that has been clearly established and duly accepted by all the main stakeholders is fundamental for systematically undertaking monitoring and evaluation. This framework should indicate:

- what has to be monitored and evaluated;
- which activities are necessary for monitoring and evaluation;
- who is in charge of each monitoring and evaluation activity;
  when monitoring and evaluation activities should be planned for (scheduled);
- how monitoring and evaluation should be undertaken (methods), and;
- what resources are necessary and to whom they are to be entrusted (allocation and responsibility).

The monitoring and evaluation framework is based on three main components: the narrative one; the results framework, and; the monitoring and evaluation tables.

1. **The narrative component** describes how development partners will undertake monitoring and evaluation activities, and the responsibilities allocated to people or entities. The narrative component can also include:
   a. plans that could be established to strengthen national or sub-national monitoring and evaluation capacities, and;
   b. pre-existing monitoring and evaluation capacities and an estimate of the needs in human, financial and material resources for the implementation of these capacities.

2. **A results framework** has to be prepared during the planning stage as described previously.

3. **Monitoring and evaluation information tables** are strategic and they permit the gathering of information required for monitoring and evaluation, with a view to facilitating consultation.

The elements of this third component of the monitoring and evaluation framework (plan) have been explained in the handbook (See Table 12. Information for project monitoring and evaluation).

1.5. Vision-Actions-Partnerships (VAP)

This tool comes from the "Vision, Actions, Requests" approach developed in the early 2000s at the International Tropical Agriculture Centre (CIAT, Beaulieu et al. 2002) for participatory plan-

ning in rural municipalities. It was reformulated within the framework of the CCAA program to be used as an introductory tool for various monitoring and evaluation tools, notably outcome mapping and RBM in a context of climate change adaptation (Beaulieu et al. 2009).

It permits the structuring of the different levels of a project management process and/or its different levels of intervention (regional, national, local). It enhances stakeholders' various points of view and their different roles and responsibilities within a group (or community or territorial entity). It further allows a project or program to define a coherent global vision for this group, a list of activities that it will undertake, and partnerships with external stakeholders. The results of this exercise can then be brought to a higher hierarchical level for analysis and integration into planning at this level. For example, a regional adaptation project will work with pilot communities in many countries. VAP can be used in each community to identify the visions of its stakeholders, the actions that community members can take and additional actions the other stakeholders will have to take (bordering communities, City Council, the State, etc.). The national coordinating teams can organize a national workshop to integrate communities' results; they would invite the national stakeholders already identified at lower levels as those that should contribute to their climate change adaptation strategies. They would also elaborate a national action plan. The regional coordinating team would also integrate the results of national teams and invite the regional partners identified at lower levels.

In addition, VAP helps to identify "boundary partners" at each level of intervention, that is, the partners or stakeholders with whom the group interacts and that it would like to influence in working towards the vision expressed. It is also a preliminary exercise for defining the outcome challenges for each partner, and the graduated progress markers, the tools from the outcome mapping approach. The vision expressed can be used to formulate indicators of impact or long-term impact outcomes. Identified actions are used to define activities and their outputs. The VAP results can thus contribute to the setting up of a results chain, which is a tool from results-based management. Table 2 shows how both VAP and outcome mapping can contribute to defining elements of the results chain.

Table 2: VAP, outcome mapping and the results chain

VAP elements →	**Outcome mapping elements** →	**Results chain elements** →
Actions	• Strategies	• Activities • Outputs
Partnerships and partners' expectations	• Boundary partners • Outcomes challenges for each partner • Graduated progress markers	• Outcomes
Vision	• Vision	• Impact (or long-term outcomes)

In a climate change adaptation project, the vision will certainly include elements related to reduced vulnerability or increased adaptive capacity. The tool for participatory analysis of vulnerability factors will provide more information on these factors and then define them for the monitoring and evaluation plan, some indicators being monitored over time.

II. CLIMATE CHANGE ADAPTIVE CAPACITIES PLANNING, MONITORING AND EVALUATION

2.1. Module I: Concepts related to climate change and adaptation and to monitoring and evaluation

2.1.1. Concepts related to climate change and adaptation

Most of the concepts used here are taken from the glossary of the Intergovernmental Panel on Climate Change (IPCC) [available at: http://www.ipcc.ch/pdf/glossary/tar-ipcc-terms-en.pdf], unless otherwise specified.

A. Variability and climate change

Climate variability refers to variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all temporal and spatial scales beyond that of individual weather events.

Climate change refers to statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer).

B. Vulnerability

Vulnerability can be defined in many ways according to the area of interest.

In the field of natural hazards, "The degree to which an exposure unit is susceptible to harm due to exposure, to a perturbation or stress, in conjunction with its ability (or lack thereof) to cope, recover, or fundamentally adapt (become a new system or become extinct)" (Kasperson et al., 2000).

Technical literature on disasters uses the term to mean "Degree of loss (from 0% to 100%) resulting from a potential damaging phenomenon" (UNOCHA Glossary of terms).

Poverty and development literature uses the term to mean, "An aggregate measure of human welfare that integrates environmental, social, economic and political exposure to a range of harmful perturbations" (Bohle et al., 1994).

In the area of climate change, the IPCC promotes a vulnerability definition that is almost exclusively related to climate change: "The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity" [http://www.ipcc.ch/pdf/glossary/tar-ipcc-terms-en.pdf].

We can thus distinguish biophysical vulnerability and social vulnerability (Adger, 1999):

Biophysical vulnerability is focused on vulnerability of ecological processes and exposure to climate change processes. It is measured by indicators such as the extension of the growth period, dry season/rainy season, flooding risks, etc.

Social vulnerability refers to political, socioeconomic, cultural and institutional vulnerability. It is measured with indicators such as education, incomes, poverty and other data, including social capital, diversification of livelihoods, land tenure, etc.

C. Resilience and stability

Ecological resilience refers to the extent of change a system can undergo without changing state. Stability, the other associated concept, is defined as the tendency for a system to get back to an equilibrium after having been disturbed (Ludwig et al., 2002).

Social resilience refers to the ability of groups or communities to cope with external stresses and disturbances as a result of political, social, economic or environmental change (Adger, 2000).

D. Adaptation or adaptive capacity?

Adaptation refers to adjustments in ecological, social and economic systems in response to actual or expected climatic stimuli or their effects and impacts. This process designates a change of procedures, practices or structures that aims to limit or eliminate potential damages, or take advantage of the opportunities created by climate change variabilities (Brodhag et al., 2004).

(Climate change) adaptive capacity is the ability of a system, region, community or individual to adjust to climate change impacts (including climate variability). It essentially depends on a society's economic, social and human resources.

Capacity can refer to: (1) the capacities, knowledge and resources necessary to perform a function, and: (2) means (financial and human, technical, administrative, social, economic and scientific) set up with a view to achieving a specific objective. (Brodhag et al., 2004).

E. Evaluation

Risk evaluation

Description: Anatomy (i.e. structures, shapes, schemes) of environmental and societal changes.
Objective: To identify the consequences of a series of disturbances or stresses for environment and society.
Outputs: Analysis of the multiple effects of a single causal factor.
Use: Professional advice to plan and face emergency situations.

Risk can refer to: (1) the quantified evaluation of the criticality of an undesirable event (probability or seriousness), or: (2) measuring the danger associated with the occurrence of an undesirable event and calculating its effects or consequences (Brodhag et al., 2004).

Evaluation of vulnerability and adaptation

Description: Physiology (i.e. functions, dynamics, synergies) of environmental and societal changes.
Objective: To determine the risk(s) of adverse consequences for units, groups or regions that are facing various disturbances or stresses, and identify the factors reducing or increasing response and adaptive capacities.
Outputs: Analysis of the specific effects brought about by multiple factors.
Use: Strategic advice for the development of public policies, or for the definition of adaptation measures and decision-making.

F. Practical implications: how to use and apply terms and concepts

There are many formulations of the vulnerability function. Within the framework of this handbook, the conceptual model used is that of Winograd (2005):

Vulnerability = Risk (Danger x Exposure) +/- Adaptation (Responses / Options)

Where:

Risk = probability and importance of a danger or climate hazard occurrence;
Danger = current and/or potential threats on humans and their well-being and for ecosystems, their assets and services;
Exposure = susceptibility to impacts and/or losses;
Adaptation = capacity to adjust a system as a response to new or changing conditions of its environment;
Options = different possibilities to respond to changes, and;
Responses = mechanisms or actions taken in reaction to present and future impacts and effects. This is a function of the level of sensitivity vis-à vis the climate hazard effects.

2.1.2. Some concepts related to planning, monitoring and evaluation of performance[1]

Indicator/ Index refers to a quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect on the changes related to an intervention, or to help assess the performance of a development actor.

Baseline situation refers to an analysis that captures the situation prior to a development intervention, against which progress can be assessed or comparisons made. It is the starting point of a result, measured through its indicator(s), which will further be used to measure the progress that results from a project intervention. Therefore, it consists of values established at the beginning of an intervention that can be used to assess project performance.

Baseline is a reference against which performance or results achieved are assessed.

Results include the output, outcome or impact (intended or unintended, positive and/or negative) of a development intervention. Related terms are achievement and direct effect.

Effects are any intended or unintended changes due directly or indirectly to an intervention.

Impact can be positive or negative, and refers to primary or secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended.

Attribution is the ascription of a causal link between observed (or expected to be observed) changes and a specific intervention (Mayne, 1999). Note: Attribution refers to that which is to be credited to the observed changes or results achieved. It represents the extent to which observed development effects can be attributed to a specific intervention or to the performance of one or more partners, taking account of other interventions (anticipated or unanticipated) confounding factors, or external shocks.

Contribution refers to that which the program brought to achieving a program's results (Mayne, 1999). Unlike attribution, which aims to determine the portion of the result achieved that is due to a given program, contribution presupposes that the program just contributed to the result achieved. It is therefore the influence the program had on achieving the program or project's results. Thus, the contribution analysis[2] aims to find credible means of demonstrating that the program has made a difference through the activities and efforts it provided to the achieved results.

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[1] OCDE, 2002. Glossaire des principaux termes relatifs à l'évaluation et la gestion axée sur les résultats.

[2] Mayne, J. (1999). Addressing Attribution through Contribution Analysis : Using Performance Measures Sensibly : Discussion paper. Office of the Auditor General of Canada. June 1999.

(Operational) monitoring and evaluation plan refers to the global framework in which questions are gathered that relate to performance and critical reflection, the data that needs to be collected (including indicators), reflection and considerations of activities and meetings with actors, resources and activities required for the setting up of a functional monitoring and evaluation system.

Monitoring and evaluation system comprises all the processes for planning, collecting and synthesizing information, reflecting and representing reports, indicating the means and capacities necessary for monitoring and evaluation to usefully contribute to decision-making and capitalization within the framework of the project.

[3] FIDA, 2000. Guide pratique de suivi-évaluation des projets.

2.1.3. Asymmetries of concerns between researchers and policy-makers

Evaluations of climate change and adaptation show differences in terms of needs and/or concerns between researchers, on one hand, and policy-makers and the rest of the population on the other hand. Table 3 summarizes some asymmetries noted by the World Bank (2004), which are worth bearing in mind in order to better understand the development context of this handbook.

Table 3: Asymmetry in the needs/concerns of scientists/decision-makers
Source: World Bank, 2004 (ESSD Week, 2003) in Winograd (2005).

Items for concern	Scientific/ Technical Community	Community/ Policy-makers
Problems	Greenhouse effect, contamination	Financing, poverty
Orientation	Climate sciences	Determining priorities
Methods	General Circulation Model scenarios, etc.	Development aid strategies
Persepectives	"Top-down"	"Bottom-up"
Vulnerability	Climate impacts	Current and future
Adaptation	Future	Current
Target	Adaptation measures	Policies and actions
Evaluations	Global, regional	National, local, projects

This handbook is a contribution meant to serve the needs and concerns of communities and policy-makers at various levels — community, national, regional and international. Indeed, it deals with the inefficient use of funding to fight poverty in the context of climate change. It focuses on how to effectively determine the priorities of local communities and countries in adapting to climate change. From a methodological point of view, it aims to improve development aid strategies. Its perspective is "bottom-up". It deals with current and future vulnerability rather than climate impacts. Adaptation is analyzed in the current situation with an aim to improve policies and interventions. Finally, evaluations are conducted in projects, communities and countries that then contribute to regional and global evaluations.

2.2. Module II : Analyzing and identifying climate change adaptive capacities

Analyzing and identifying climate change adaptive capacities are the first steps to planning combined monitoring and evaluation processes. There are many methods, tools and approaches developed and/or being developed by stakeholders concerned by climate change effects. This module aims to provide African institutions with widely used and tested tools that can facilitate their taking into account climate change in development projects and programs. The tools presented in this handbook are easy to roll out and do not require any particular special capacity in climate change science or issues. The skills required to use these tools are: (1) project and program management; (2) participatory development planning, and; (3) analysis and synthesis capacities.

2.2.1. Tool 1: Climate vulnerability and capacity analysis (CVCA)

As a reminder, CVCA mainly uses four tools that from a conceptual point of view are taken from participatory approaches, but that are well adapted to the analysis of vulnerability to climate change impacts on the livelihoods of communities. They are the **historical timeline**, **seasonal calendar, hazard mapping** and **vulnerability matrix**. Two tools have been chosen and described in this document. First is the hazard mapping tool named in this document as "resources and hazard mapping", for the sake of harmonizing the terminology. The second tool is the vulnerability matrix.

Objectives

The objectives of this module are to:

- obtain a sketch map representation of resources (natural, physical, financial, human and social) available within the community's territory and of the climate hazards it faces;
- identify the hazards that have the most impact on the most important livelihoods,
- identify the most vulnerable social groups, and;
- identify the adaptive strategies currently used to cope with the identified hazards.

Implementation

Resources and hazard mapping and the vulnerability matrix are developed with local communities and, if necessary, also with the participation of development partners. Before organizing workshops with communities, it is important for the project or program team to collect secondary data on climate hazards, as well as on socioeconomic and socio-cultural characteristics. This information is necessary for deciding how the workshops will be organized practically to avoid discrimination between and among social groups, particularly between men and women. It is imperative to take into account the differentiated effects of climate change on men and women.

The development of the mapping and vulnerability matrix follows seven steps.

1. Choose the main facilitator within the team. The main facilitator should speak the local language to minimize translation errors. The other team members will intervene methodically to make it easy to understand the questions asked by the main facilitator.
2. Take a moment at the beginning to introduce participants and facilitate discussions.
3. Come to an agreement with communities on focus group training, which will high-light the different effects of climate change on women and men.
4. As much as possible, keep a reasonable group size of women and men.
5. In each focus group, introduce the tools and their objectives.
6. Choose an introductory item for the discussion on the development of resources and hazard mapping and the vulnerability matrix.
7. Organize the data collected and enter them into the computer for use during the planning process with the CRiSTAL tool (covered later in this handbook).

Outputs expected from community-based workshops

Two main outputs can be expected from the community-based workshops:

1. a community resources map (natural, physical, financial, human and social) showing the location of the climate hazards that the community faces. It is not a geo-referenced map, but a sketch done by the communities, supported by the project or program team, which shows the geographical location of the resources and the places subject to climate hazards, and;
2. a table describing the vulnerability of main resources vis-à-vis the various climate hazards pinpointed on the resources and hazards map. The vulnerability matrix is established for each hazard and its impacts, and for the three main resources of each category of resources (natural, physical, financial, human and social).

2.2.2. Tool 2: CRiSTAL (Community-based Risk Screening Tool-Adaptation and Livelihoods)

Objectives

The objectives of this module are to:
- understand the links between livelihoods and climate hazards;
- evaluate a project's impacts on beneficiaries' climate change adaptive capacities, and;
- adjust project activities to improve their impact on local climate change adaptive capacities.

Implementation

The project team should use the data collected with the CVCA resources and hazards mapping and the vulnerability matrix as an input to CRiSTAL. The current version of CRiSTAL allows for consideration of only the three major climate hazards that communities face, the three main and most vulnerable resources in each category, and the three main adaptation strategies. The implementation itself consists of entering the data collected by the vulnerability matrix in the CRiSTAL software package under Microsoft Excel. These steps are summarized here.

1. **Describe the climate context**. Identify current climate hazards and change impact in the project areas, as well as adaptation strategies.
2. **Describe livelihoods**. Identify the resources necessary for populations' survival and indicate those seriously affected by climate hazards.
3. **Envision the project activities**. Evaluate how the project activities influence availability and access to key resources that are highly affected by climate hazards and crucial for survival strategies.
4. **Cope with climate hazards**. *Adjust the project to increase the likelihood of increasing* availability and access to key resources (make sure that the activities that facilitate the availability of these resources are adjusted).

Expected outputs

The output (Tables 4, 5 and 6) expected from this exercise is essentially a report including results of three analyses: (1) an analysis of climate hazards, their impacts and adaptive strategies; (2) a livelihoods profile, and; (3) an analysis of synergies and obstacles between the project activities and community adaptive strategies.

Table 4: Analysis of climate hazards, impacts and adaptive strategies

Risks, impacts and adaptive strategies			
Risk (hazard) 1			
Impacts (I)	I1	I2	I3
Adaptive strategies (S)	S1	S2	S3
Notes on adaptive strategy (NS)	NS1	NS2	NS3

Risk (hazard) 2			
Impacts	I1	I2	I3
Adaptive strategies	S1	S2	S3
Notes on adaptive strategy	NS1	NS2	NS3

Risk (hazard) 3			
Impacts	I1	I2	I3
Adaptive strategies	S1	S2	S3
Notes on adaptive strategy	NS1	NS2	NS3

Table 5: Profile of livelihoods context

Profile of livelihoods context
In the project area, the types of important resources that are closely linked to local livelihoods, climate or adaptation are:
Natural resources (NR)
NR1
NR2
NR3
Physical resources (PR)
PR1
PR2
PR3
Financial resources (FR)
FR1
FR2
FR3
Human resources (HR)
HR1
HR2
HR3
Social resources (SR)
SR1
SR2
SR3

Table 6: Analysis of synergies and obstacles between initial and revised project activities

Synergies and obstacles		
Initial project activities	Revised project activities	Synergies and obstacles (initial/revised activities)

2.2.3. Tool 3: Participatory analysis of vulnerability factors

Objectives

The objectives of this module are to:

- identify the factors (exposure and sensitivity) that contribute to communities' vulnerability in the face of the climate hazards in their area;
- establish the baseline situation of climate change effects on communities and of their resources;
- determine the various characteristics of the adaptive capacities of vulnerable community members.

Implementation

Knowing climate hazards, their impacts on community livelihoods and climate change adaptive capacities is not enough to determine their importance for the community. In fact, the impact of climate hazards on development depends on two crucial factors: exposure and sensitivity. If a great

part of the community is exposed and sensitive to a climate hazard, the impact of this hazard on development will also be significant. However, if only a small part of the community is exposed and sensitive, the climate hazard will have a relatively small impact, which does not jeopardize development efforts.

The participatory analysis of vulnerability factors is done with community members and follows six steps.

1. Present the three main identified climate hazards and the associated impacts in a table.
2. Explain to participants the objective of this exercise, which is to obtain a better understanding of the scale of climate hazards. Help them understand how this increases their exposure and thus their sensitivity to climate hazards, which amplifies the negative effects of climate change on all community members.
3. Evaluate the level of exposure and sensitivity to each identified hazard by taking a fictive sample of ten households in the community and evaluating how many are exposed and how many are sensitive.
4. Check the consistence of the levels of exposure and sensitivity to make sure that the level of sensitivity is less or equal to the level of exposure. Indeed, if someone is not exposed to a climate hazard, they cannot be sensitive to this hazard, and not all those that are exposed to a climate hazard are necessarily sensitive to that hazard.
5. Convert the percentage figures obtained to actual numbers representing the whole community.
6. Note the features of the adaptive capacity of community members considered sensitive to climate hazards.

Expected outputs

The expected output (Table 7) is a breakdown of each hazard into its two risk factors for each impact of that hazard.

Table 7: Analysis of climate hazard-related vulnerability factors

Hazards	Impacts	Vulnerability factors		Notes on response capacities
		Exposure (%)	Sensitivity (%)	

2.3. Module III: Relating adaptive capacities locally to globally

2.3.1. Tool 4: Vision-Actions-Partnerships (VAP)

Objectives:

The objectives of this module are to:

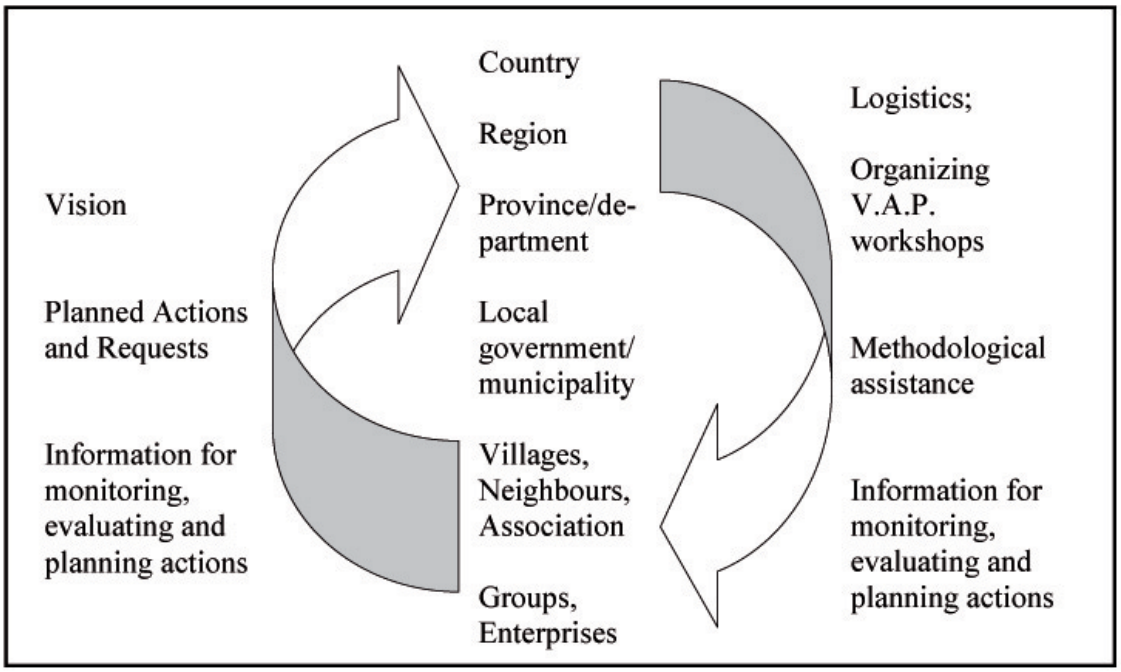
- provide information on the elements of the desired future conditions (visions) of each individual participant;
- agree on a collaborative vision of the desired future conditions. Note that a collaborative vision is not necessarily consensual, but rather compatible with all the stakeholders' individual visions (aspirations);
- link stakeholders' actions from various administrative sectors and levels, taking advantage of their different and complementary roles;
- identify the partners that the communities need to work with to achieve the desired future conditions, and determine what contributions are needed from them.

Implementation

The team in charge of conducting a VAP development workshop should well understand the roles of and the relationships among the different groups of stakeholders. This presupposes the need to identify and understand the existing relationships among the stakeholders involved (stakeholders or systems), and to evaluate the logistical requirements for organizing the workshop. The team should also understand the information flows among the different groups of stakeholders at different administrative levels.

Figure 6 gives an example of the information flow from individuals up to the national level (country), through the various groupings of these individuals in socio-professional, village, collectivity, department, province, region and country groupings.

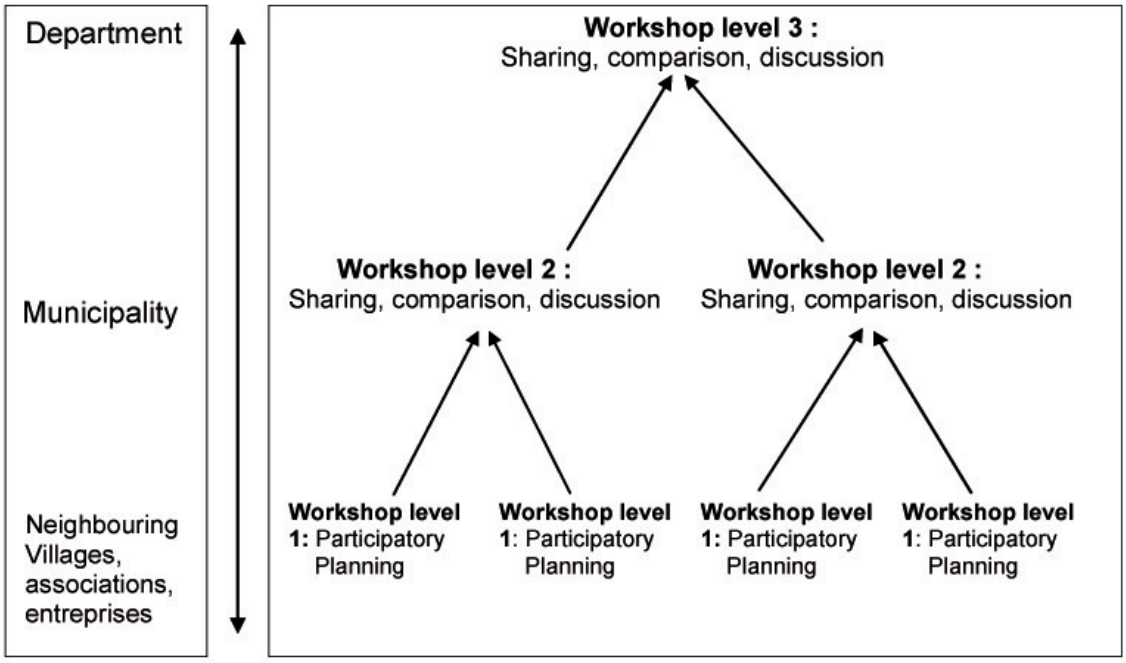
Figure 6: Information flow and assistance across administrative levels for VAP
(source : adapted from Figure 11 in Beaulieu, N., Jaramillo, J. and Leclerc, G. 2002)[4]



[4] Beaulieu, N., Jaramillo, J., et Leclerc, G. (2002). The vision-action-requests approach across administrative levels : a methodological proposal for the stratégic planning of rural development. Internal report, CIAT/MTD, Cali/Montpellier, 30 p
http://ciat-library.ciat.cgiar.org/documentos_electronicos-ciat/Articulos_Ciat/report_manual_var_2002.pdf. Consulté le 22 mai 2010.

Figure 7 (below) summarizes an example of the aggregation principle of elements of Vision-Actions-Partnerhips assembled with different stakeholders groups. Participatory planning workshops are organized in villages. At higher administrative levels, the workshops are organized to share, compare, discuss and validate participatory planning data.

Figure 7: Iterative hierarchy of comparison, discussion and compilation of stakeholders' inputs
(adapted from Beaulieu, N., Jaramillo, J. and Leclerc, G. 2002)



Participants need to establish a concerted synthesis of the different vision elements for each group of partners or stakeholders (including communities), actions and partnerships and for each vison element. The collaborative synthesis of the different vision elements is done during the participatory planning (level 1). The identified vision elements, actions and partnerships will then be validated during sharing, comparison and discussion workshops at a higher administrative level (levels 2 or 3). The description of the vision is developed during level 2 or 3 workshops. Thus, on the basis of the synthesis of the validated vision elements, a team member or a small group elaborates a vision statement and submits it to the whole group for validation. The validation consists of verifying that all the vision elements have been taken into account in the vision statement and that no stakeholder's contribution has been omitted. Finally, the project or program team finalizes the grammatical wording of the validated vision (Table 8).

Expected outputs

The output expected from this exercise is a table containing information on the Vision-Actions-Partnerhips as presented in Table 8. It is important that notes should be systematically taken on how to conduct the process and on individual contributions.

Table 8: Vision–Actions–Partnerships for the community

Vision Description of the conditions desired if the project or intervention are extremely successful	**Actions** As a group, what do we expect to do to contribute to the Vision and/or influence partners who can also contribute?	**Partnerships** Partners with whom the group interacts and intends to influence; Expectations from each of them

2.4. Module IV: Planning, monitoring and evaluation of climate change adaptive capacities

2.4.1. Tool 5: Outcome challenges for each partner

Objectives:

- to choose the partners that the project intends to influence (boundary partners);
- to agree on how the behaviour, relationships, activities or actions of an individual, group or institution will change if the program is extremely successful, and;
- to clearly describe the changes to which the program will contribute, if successful.

Implementation

This tool can be implemented at each level of intervention of the project, for example, in each community where it intervenes, and also at each level of project management and administration. The outcome challenges are written in a way to capture how the stakeholders will change their behaviours, activities and relationships with others, assuming that the project or program will play its potential facilitating role for behavioural change.

For this, each participant in the process of developing the outcome challenges for his or her group of partners should answer the following questions: (1) What has to change in each boundary partner's behaviours or actions to contribute to the vision?, and; (2) What new relationships will have been formed? How will existing ones change?

The answers to these questions are then to be collected and submitted for discussion to the members of the group of partners for final improvements.

A plenary is then organized to evaluate the level of ambition of the descriptive elements of the outcomes proposed, their realism and their relevance. Once the descriptive elements of the outcome challenges are validated, formulate an outcome statement for each group of partners and check whether the statements are included in the descriptive elements. Finally, review the logic between the outcome challenges and the vision described by the Vision–Actions–Partnerships tool. This is to ensure that the proposed changes contribute to the declared vision.

Expected output

The output expected from this exercise is a sheet identifying the outcome challenges as presented in Table 9.

Table 9: Outcome challenges identification sheet

Vision (VAP tool):	
Boundary partner 1:	**Outcome Challenge 1:** The [*program/project*] expects to see [the boundary partner] [*behaviour description at active present*].
Boundary partner 2:	**Outcome Challenge 2:** The [*program/project*] expects to see [the boundary partner] [*behaviour description at active present*].
Boundary partner n:	**Outcome Challenge n:**

2.4.2. Tool 6: Graduated progress markers

Objectives:

- to elaborate progress milestones for each partner group towards the achievement of the program outcome challenges;
- to better get acquainted with the complexity of the changes to be set up to contribute to the vision.

Implementation

It is important to note that any partners doubtful about the change process should be identified. These partners should be closely monitored, and the monitoring and evaluation priorities focused on them. Progress markers and strategic maps can then be determined for these boundary partners only.

The facilitator should read the outcome challenges for each group of partners and ask the following questions: (1) “How can the program know that the boundary partner is moving towards the outcome challenge?”, and; “What (milestones) will be reached as the partners move towards their intended roles in contributing to the vision?” The group of partners should try to think about changes in behaviours, activities and relationships that will occur early on, as well as those that represent more profound change and take more time. Cards can be used to write down the ideas.

The group of boundary partners reviews the cards that represent: (1) minimum changes (expect to see); (2) desired changes (would like to see), and; (3) ideal changes (would love to see). Redundancy should be eliminated by keeping only those progress markers that represent the boundary partner’s commitment and provide best evidence of the change. Finally, the group will review the logical picture of the complexity of the change process through which the partner would progress in moving towards the outcome. The group should agree that the main milestones in the behaviour change process are well represented. The number of markers should be limited, to facilitate further monitoring and evaluation.

Expected output

The output expected from this exercise is a sheet developing intentions for graduated progress markers as presented in Table 10.

Table 10: Graduated progress markers development sheet

Outcome Challenge:	
Expected outcome(s): easiest to achieve _____ [Boundary partner]	
1	
2	
Desired outcome(s): that you would "like to see" _____ [Boundary partner]	
3	
4	
Ideal outcome(s): most difficult to achieve, that you would "love to see") _____ [Boundary partner]	
5	
6	

Notes:
Expected outcome(s): these are changes indicating a reactive participation of the boundary partner and that are relatively easy.
Desired outcome(s): these are changes showing a more active learning or participation of the boundary partner,
Ideal outcome(s): these are changes representing a real transformation of the boundary partner.

2.4.3. Tool 7: The results chain

Objectives:

- to select actions that can help strengthen climate change adaptive capacities;
- to develop the outputs that the program or project will provide to boundary partners to influence the changes aimed for in and contributing to the vision.

Implementation

Rolling out the results permits the development of an action plan based on the outputs of the preceding tools 1 through 4. In fact, rolling out tool 1 with the resources and hazards mapping and the vulnerability matrix, and tool 2 with CRiSTAL, provides reliable information on hazards and their impacts that confront communities. Participatory analysis of vulnerability factors obtained with tool 3 allows for measurement of the extent of the three main climate hazards within communities. Finally, rolling out the Vision–Actions–Partnerships (tool 4) identifies a vision, actions that aim to reduce the worst impacts of climate hazards, as well as partners and their respective roles in implementing the actions.

We also have appropriate actions to strengthen the climate change adaptive capacities of local communities. From this, the project or program team can develop a climate change adaptive action plan that meets community needs, according to the duration of the intervention. The team must select the actions that the project or program can support, and identify the outputs that are to be provided to partners to contribute to the identified changes from the elaboration of the outcome challenges (tool 5). It is important to ensure that supporting actions in the change of behaviour, activities and relationships have been taken into account.

Eventually, the project or program team should: (1) complete the lists of actions to strengthen adaptive capacities; (2) seek information on inputs (cost elements of actions and the human resources needed to manage the financial resources); (3) identify the products and services that the actions will provide to partners, which result from the program or project contribution; (4) identify the outputs and outcomes expected to result from the use of the products and services, and lastly; (5) identify the impacts to which the project or program contributes.

Expected outputs

The output expected is the organization of the data collected in a table form describing the results chain (Table 11), that is, how the inputs will be used to contribute to the impacts.

Table 11: The results chain adapted to the program or project

Inputs	• financial resources • Human resources
Activities	• Action or group of actions • Action or group of actions
Outputs	• Output 1 and related Indicators • Output 2 and related Indicators
Results/ Outcomes	• Result/Outcome 1 and related indicators/Progress markers • Result/Outcome 2 and related indicators/Progress markers
Impacts	• Impact 1 and related indicators • Impact 2 and related indicators

2.4.4. Tool 8: Monitoring and evaluation information matrix of the identified actions

Objectives:

- to synthesize all the information needed by partners to monitor and evaluate the outputs and changes achieved thanks to the contribution of the program or project;
- to estimate the costs and constraints in implementing monitoring and evaluation.

Implementation

On the basis of the results of the outcome challenges (tool 5), the graduated progress markers (tool 6) and the results chain (tool 7), the project or program team will develop a table for monitoring and evaluation information. This table includes: (1) monitoring and evaluation questions on the VAP (tool 4) and integrates the outputs of tools 5 through 7, indicators and milestones; (2) the methodology used to collect monitoring and evaluation data; (3) problems relating to achievement, and; (4) internal and external resources and capacities. The monitoring and evalution information matrix is therefore a combination of VAP, outcome challenges and graduated progress markers, and indicators of RBM results chain. A good monitoring and evaluation plan should also integrate a calendar for im-

plementing the monitoring and evaluation activities, as well as a plan for dissemination and use of the outputs of monitoring and evaluation.

Expected output

The output expected from this exercise is an information table on monitoring and evaluation (Table 12).

Table 12: Monitoring and evaluation information matrix for the project

Vision-Actions-Partnerships (VAP)	Results chain	Milestones/ Indicators	Data collection method	Who will collect the data?	Collection frequency	Who will analyze the data?
Actions	Activity 1	Process indicator 1	Implementation monitoring tools	To be determined	Monthly	To be determined
	Activity n	Process indicator n	Implementation monitoring tools	To be determined	Monthly	To be determined
	……	……	……	……	……	……
	Output 1	Output indicators 1	Observations, measures or surveys	To be determined	Quarterly	To be determined
	……	.....	……	.....	.....	.....
	Output n	Output indicators n	Observations, measures or surveys	To be determined	Quarterly	To be determined
Partners	Outcome challenges/ - Partner 1	Progress markers and intermediate result indicators- Partner 1	Outcome journal/ Most significant change/ and surveys	To be determined	Bi-annual	To be determined
	…….	……	……	.....	……	.....
	…….	……	……		……	
	Outcome challenges/ - Partner n	Progress markers and intermediate result indicators- Partner n	Outcome journal/ Most significant change/ and surveys	To be determined	Bi-annual	To be determined
Vision	Impact 1	Impact indicators 1	Surveys and monitoring data	To be determined	Annual/ bi-annual	To be determined
	……	……	……	.....	……	.....
	……	……	……	……	……	……
	Impact n	Impact indicators n	Surveys and monitoring data	To be determined	Annual/ bi-annual	To be determined

2.5. Module V: Implementing monitoring and evaluation of climate change adaptive capacities

This module presents a selection of data collection methods and tools for strengthening climate change adaptive capacities. As with the other modules, the tools outlined here are not exhaustive. In fact, a variety of methods and tools is applicable to data collection. However, three tools are fairly simple to roll out and they appear useful in enabling communities to express the way they measure progress made. These are tools for setting up the baseline situation from which progress made will be compared to inform the changes that have occurred and to which the intervention contributed (the most significant change and the outcome journal).

2.5.1. Tool 9: Outputs, protocol for results/outcomes monitoring and evaluation

Objectives:

- to define how the data on outputs, outcomes and impacts that were incurred thanks to the contribution of the project or program will be collected, analyzed and disseminated for partners' use;
- to develop an information management system from the project or program implementation.

Implementation

The monitoring and evaluation protocol is a planning tool that enables the project or program team to effectively conduct monitoring and evaluation activities and to manage the information they generate in order to improve the project or program performance. To develop a monitoring and evaluation protocol, the project team should follow four steps.

1. From the monitoring and evaluation information table, aextract the type of data that needs to be collected to to provide information on performance indicators and progress markers.
2. Develop the data collection and analysis tools included in the monitoring and evaluation information table.
3. Develop data management tools for monitoring and evaluation and tools for communication and information management.
4. Develop, if necessary, a training plan for the persons in charge of implementing monitoring and evaluation.

It is necessary to have a robust package of participatory and individual data collection tools to guarantee learning among boundary partners, and also to ensure the reliability of the data to increase the replicability of the project or program benefits. There is a variety of participatory monitoring and evaluation methods, as well as sampling techniques. The persons in charge of developing the monitoring and evaluation protocol are invited to consult these methods and techniques so they area able to choose those that best fit the context of the project or program.

Expected output

The expected output is a protocol that describes the procedures or modus operandi of monitoring and evaluation activities. This protocol should at least include the:

1. monitoring and evaluation information table;
2. types of data (monitoring parameters) to be collected for each indicator/milestone

included in the information table and their baseline values, if available;
3. baseline data collection and analysis tools, if the baseline values are not available;
4. collected and analyzed data management and transmission tools;
5. training needs of those in charge of monitoring and evaluation.

2.5.2 Tool 10: The most significant changes (MSC) Source: Davies and Dart (2005)

Objectives:

- to get partners' stories regarding changes to which the project or program contributed;
- to understand the value systems of the people who tell stories on the most mignificant changes;
- to inform the project or program about unexpected outcomes or those not taken into account in the initial indicators.

Implementation

This method proposes a participatory evaluation based on the stories gathered from different stakeholders. These "stories of change" (only the most "significant" ones are kept) rely on simple and verifiable data and enable the project or program to concretely present the reality without necessarily setting up complex tools or sophisticated data.

The implementation of the MSC tool requires a number of preliminary activities with partners:

1. **Defining the change areas**. The partners should jointly define the changes areas to which the project or program will contribute. Three to five areas can be identified. The areas can be identified in an ascending or descending order of the change process. For example, changes areas can be defined by the living quality of populations, the nature of the populations' participation in development activities, sustainability of organizations and of populations' activities, etc.

2. **Frequency of reporting**. Partners should agree on the periodicity for getting the stories on the MSC. A consensus should be reached between "low" and "high" frequency of the MSC reporting, given that the more often the sotires are collected, the more costly and time consuming the system. Experience suggests it is advisable to collect stories at closer intervals at the beginning. The frequency will then be spaced out as the process goes on.

3. **Content of the stories on the most significant changes**: We start with a typical question: "According to you, what have been the most significant changes in the last months?" The stories can be collected through interviews or group discussions, or the beneficiaries can write their stories directly. Standard formats can be proposed for sending the stories. They do not have to be too complex. As far as the storytellers are concerned, they are identified among beneficiary groups or people closely related to the project, without directly benefitting from it.

4. **The selecting process of the most significant changes**: The MSC approach adopts an iterative process for selecting the stories that are collected. Groups of persons at different levels in the project or program hierarchy select the most significant stories among those collected and argue their preference. This selection is done according to criteria that can be identified before or after reading the MSC stories. The criteria used to select the most significant stories are recorded and sent to all the stakeholders

in order to inform all the levels about the choices made and the criteria used. The MSC stories can be about the positive and/or negative effects of the project or program.

Once the partners agree on the MSC and the criteria used to select them, it is important to ensure that several other aspects of the exercise are taken care of.

- **Feedback on the results and on the process of story selection reaches key stakeholders**. Feedback is an important element in any monitoring and evaluation process, and the stories about the most significant changes are no exception. Feedback on the MSC exercise enables partners (including donors) to understand which stories have been selected, why, and how the selection process was organized. This can be done orally, through email, newsletter or in formal reports.

- **Verification of the stories**: Meetings can be organized at the places the changes occurred to verify the accuracy of the facts contained in the stories of the MSC. The aspects of description and interpretation are thus verified through field investigations that test the accuracy of the stories with real findings on the ground. The verification can be entrusted to a monitoring and evaluation team member or to an external evaluator.

- **Quantification of the stories information**: The quantitative information contained in the MSC stories told by individuals can be collected and analyzed. In fact, it is possible to indicate the number of people involved, the number of activities set up and to quantify the different effects of these. In addition, it is possible to quantify the extent to which the changes noted at a given time in one location are also noted elsewhere.

- **Monitoring the story collection process**: It is important to monitor the functioning of the most significant stories collection process itself, that is: Who participated in the process? How were the different types of changes recorded? To what extent and how did the rolling out of the MSC tool affect the project's functioning and its financial support?

Output of the most significant changes process

Name of the storyteller: .....

Name of the story reporter (if different from the teller): .....

Site (place where the change occurred): .....

Reporting date: .....

Do you want your story to be told to other people? Yes: ..... No: .....

Key questions

1. Tell me how you (storyteller) first became involved in the program and what is the level of your current involvement:

_____

_____

2. From your point of view, tell a story that describes the most significant fact about or aspect of your involvement in the program:

_____

_____

3. How has this change been the most significant for you?

_____

_____

4. How has the program team work contributed to this change? (if it has)

_____

_____

2.5.3. Tool 11: Outcome journal

Objective:

To provide information on the evolution of graduated progress markers and the changes that occurred in the behaviours of the project or program boundary partners. (These changes can also be in partners' relationships, practices, activities and actions.)

Implementation

To monitor the progress through time, an outcome journal is developed for each boundary partner that the project or program has identified as a priority actor in the monitoring and evaluation process. This journal includes: (1) the graduated progress markers identified with tool 6, and; (2) a description of the magnitude of the change (low, medium or high) and a place to indicate which partner reported the changes. Other information that is also collected includes the reason for the change, the population and circumstances that contributed to it, evidence of the change, as well as unexpected changes and lessons for the program.

It is also necessary to identify the way that information taken from the journal is processed and managed. This means that techniques are defined for dealing with information to ensure that that the journal is updated regularly, according to the periodicity agreed upon by the partners.

Expected output

The outcome journal is simply presented as follows:

DESCRIPTION OF CHANGE:
CONTRIBUTING FACTORS AND ACTORS
SOURCE OF VERIFICATION (EVIDENCE):
UNEXPECTED CHANGES (INCLUDE DESCRIPTION, CONTRIBUTING STAKEHOLDERS AND FACTORS AND SOURCE OF VERIFICATION):
LESSONS AND REACTIONS/ REQUIRED PROGRAM CHANGES :

III. CONCLUSION

This handbook has shown that many planning, monitoring and evaluation frameworks, tools and methods can be harmoniously combined with climate change adaptation initiatives. Until all the strengths and opportunities of these frameworks, tools and methods have been tried out and found wanting, there is no need to develop new ones.

Thus, objective-based planning, monitoring and evaluation frameworks can be extended towards the vision by associating the appropriate frameworks; the vision being a level of change higher than the objective. In the same way, tools and methods designed only for planning can be supplemented with those designed for monitoring and evaluation as these three components of a project cycle management are interdependent. It is important to note that any planning, monitoring and evaluation framework, tool and method, as efficient as it may be conceptually, should be considered as a means to enable reflection among project or program partners. The way a framework, tool and method is used depends on the development area in which it is applied.

There are no standard recipes for planning, monitoring and evaluation in project or program management. In the same development area, the outcome challenges, expected results and activities are different from one project or program to another. Therefore, the frameworks, tools and methods presented in this handbook are not exhaustive. They have been selected on the basis of a participatory research action approach that allowed for (1) diagnosis of their gaps; (2) combining them to exploit their strong points and minimize weak ones, and; (3) the testing of the combinations of these tools in the field for adjustment purposes before validation.

Of course, there are other tools and methods, ranging from simple to complex. And this is why this handbook is intended to be dynamic, so that as the eleven simple tools are mastered, other more sophisticated tools can gradually be integrated into it.

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PART II: The User Guide

I. INTRODUCTION

This User Guide outlines eleven tools, each presented according to three essential points: (1) key concepts; (2) how to facilitate, and (3) verification and validation of the output. For the tools to be effectively rolled out, the following ten key guiding principles should be respected:

- *Principle 1*: Form a multidisciplinary team including at least one participatory animation specialist and/or one local language interpreter.
- *Principle 2*: All members of the interpreter's team should individually be fully familiar with the handbook and its user guide.
- *Principle 3*: Organize an exchange and discussion session within the team to better understand the tools.
- *Principle 4*: Collect the existing socioeconomic, cultural and climate information on the target communities and the intervention areas.
- *Principle 5*: Each team member should be familiar with the information collected.
- *Principle 6*: Organize information and sensitization missions with stakeholders at all levels involved (communities, municipalities, technical and administrative departments, etc.).
- *Principle 7*: Carefully plan (with attention to time, logistics and financial resources) workshops together with the stakeholders involved, considering information compiled within the framework of principle 4.
- *Principle 8*: Take care not to work more than four hours a day in a given community to avoid tiring or boring participants.
- *Principle 9*: Form focus groups according to each community's socio-cultural and professional realities.
- *Principle 10*: Document results and provide these to the stakeholders that are involved.

Finally, the effective use of each tool requires good knowledge of the participants (Table 13) that will be involved.

Table 13: List of the tools and the participants required for their implementation

Tools	Name	Participants
Tool 1	Resource and hazards mapping and vulnerability marix using the CVCA	Project and communities
Tool 2	Resources and vulnerability analysis and adaptive capacities by CRiSTAL	Project executives
Tool 3	Participatory analysis of vulnerability factors	Project and communities
Tool 4	Establish the Vision–Actions–Partnerships	Project, communities, technical/ administrative departments, collectivities
Tool 5	Identify the outcome challenges	
Tool 6	Develop graduated progress markers	
Tool 7	Elaborate the results chain	Project
Tool 8	Elaborate the monitoring and evaluation information table	
Tool 9	Develop operational protocol for monitoring and evaluation activities	
Tool 10	Develop stories on the most significant changes	Project, partners, communities
Tool 11	Develop an outcome journal	Project, communities, technical/ administrative departments, collectivities

II. MODULE 2: ANALYZING AND IDENTIFYING CLIMATE CHANGE ADAPTIVE CAPACITIES

2.1. Tool 1: Climate vulnerability and capacity analysis (CVCA)

2.1.1. Resources and hazards mapping

Key concepts

Community: A group of interacting people who share and use information according to their focus centres, demographic features, resources or common professional activities.

Focus group: A group of 4 to 15 persons selected within a community to provide information on a well-defined subject. In the case of this handbook, the favoured criterion is gender, in order to take into account the differentiated climate change effects on men and women. However, other criteria can be used to form the groups according to the community's socio-cultural background. Focus group discussions are animated by a moderator.

Natural resources: Forest products (combustible), forest products (construction), forest products (income), forest products (food), forest products (medicine), livestock (combustible), livestock (income), livestock (food), land, production oil, peat, marine coral reefs, sandstone, mangrove forests, beaches, wetlands, etc.

Physical resources: Farming tools, airport sites/ runways, bicycles/ rickshaws, bridges, boats, cars/trucks, computers, containers, trucks, charts, ponds, rainwater collection system, roads, waste disposal system, water transportation network, water pumps, water sanitation facilities, water tanks, wells, wheelbarrows, etc.

Financial resources: Market access, cash, credit system, insurance, liquid assets (livestock, etc.), loans, allowances, money transfers, etc.
Human resources: Agricultural knowledge/training (cultivating locally marketed crops, for example), stockbreeding, skills/handicrafts, skills/training for family industries, skills/training in water management, skills/training in health care, skills/veterinary training, etc.

Social resources: Local community-based organizations, local governance institutions, men's groups, (local) non-governmental organizations (NGOs), regional/national NGOs, regional/national governmental institutions, religious groups, trade associations, etc.

Climate hazards: drought, extreme cold, extreme heat, floods, hail, strong winds, long-term lack of rain, permafrost melting, storms, sand winds, snowstorms, snow/ ice avalanches, storm waves, tornados, typhoons, bushfires, etc.

How to facilitate

1. Form groups by taking into account, if necessary, the differences between men and women and between socio-professional groups (farmers, stockbreeders, fishers, forest gatherers or agroforesters, etc).
2. In each group, explain to the participants that you would like to draw a map of their village (or terroir).
3. Choose a suitable place for the map (ground, floor, paper) and medium if necessary (sticks, stones, seeds, pencils, chalk).
4. If the map is drawn on the ground or floor, the note taker will then have to copy the map into a notebook or take a picture for later use.
5. First, develop and build the community map. Ask the community members to identify their village boundaries using their own landmarks.
6. Draw the boundaries of the community (stones …). **Note**: The facilitator should help the participants get started but let them draw the map by themselves.
7. Ask community members to draw the location of settled areas, critical facilities and resources in the community. This should include houses (the map doesn't need to show every house, but it should show the general area where houses are located), facilities such as churches/mosques, health post, schools, and resources such as forest, fields and water points (boreholes, ponds, lakes, rivers). For an illustration, see Appendix 1.1.

Verification and validation of the output

The output expected from this tool is a map of the community and its bordering villages. The information to be verified before validating the map includes:

- each category's main resources are agreed upon by participants (men and women);
- the main climate hazards faced by community members (men and women) are agreed upon;
- community boundaries are recognized by the community members, and;
- any disagreements on what are the main resources and hazards are listed.

2.1.2. Climate hazard vulnerability matrix

Key concepts

Matrix: A double-entry table used to represent a complex phenomenon.

Vulnerability: The level to which exposure to a disturbance or a stress is likely to harm a unit of the ecosystem or the human system.

Impact: Positive and negative, primary and secondary long-term effects produced by a climate hazard on community members livelihood resources.

Response strategy: Current methods for using natural resources to achieve advantageous results in abnormal or harmful climate conditions.

Adaptation options: Possible changes in the way resources are exploited or in livelihood strategies to obtain advantageous results in abnormal or harmful climate conditions.

How to facilitate

1. Prepare a matrix in advance. This can be done on the ground or on flip chart paper.
2. List the most important livelihood resources for each of the five categories of resources from the resources and hazards map that has been already drawn.
3. If the resources list is not too long (fewer than ten), ask the group to classify them from the most important to the least important in achieving their well-being.
4. If the list is too long (more than ten), ask the group to identify the four resources they consider to be the MOST important for achieving their well-being.
5. List these priority resources down the left side of the matrix on the vertical.
6. Ask the group to identify the greatest hazards to their livelihoods (resources). Focus on climate-related hazards, but other types of hazards are not excluded. Hazards may be natural or man-made.
7. List the four most important climate hazards horizontally across the top of the matrix, using symbols if necessary. For an example, see Appendix 1.2.
8. Explain to the participants the scoring system for the hazards to their livelihoods resources, going from no impact (0) to the most significant impact (5).
   0 = hazard with no impact on the livelihood resource
   1 = hazard with a mimimum impact on the resource
   2 = hazard with a minimum to medium impact
   3 = hazard with a medium impact on the resource
   4 = hazard with an average to strong impact
   5 = hazard with a very strong impact on the resource
9. Ensure that all members of the group understand the scoring system.
10. Once they do, ask the participants to decide on the degree of impact that each of the hazards has on each of their livelihood resources. This will require the group to come to a consensus. The note taker should record key issues of discussion that lead to the scores assigned, and also any disagreements on the scores.
11. It is advisable to base scoring on the impact of one hazard on each resource in the same column. Thus, once the impact of the first hazard has been decided on the first resource, ask the participants if the impact of the same hazard on the second resource is identical, lower or higher than its impact on the first resource. This will make it possible to progress more quickly and have consistent scoring of the hazard impact on each individual resource.

Verification and validation of the output

The output expected is a table summarizing the importance of the impacts of main climate hazards on main livelihood resources. The steps to be followed to validate the table are:

- verify that all resource categories have been analyzed regarding their vulnerability face to each climate hazard;
- add the scores for each hazard to identify which one's impact is considered the most significant for all the resources, and make sure that participants agree;
- add the scores for each resource to identify the most impacted resource by all the hazards and make sure that participants agree;
- if participants do not agree with the additions, check the scores they attributed when evaluating the hazards' impacts on resources;
- if the group agrees with the additions, then the vulnerability matrix can be validated.

Hazards Resources	Drought	Floods	Strong winds	…	Total per resource
Forest products (combustible)	4	0	0	….	….
Livestock (food)	3	2	0	….	….
Land	1	4	0	….	….
….					
….					
….					
Total per hazard					

After the matrix validation, the vulnerability analysis continues to analyze the adaptive capacities.

- Prepare the continuation of the vulnerability matrix table, including the hazards, the observed impacts, current strategies (responses), evaluation of the current strategy, identification of other options, means to adopt them, and the related constraints.
- Explain to the group members the information they will be asked to provide.
- Ask the group members to answer to the following questions:
- What are the impacts observed for each hazard of the vulnerability matrix?
- What are the adaptation strategies currently used to deal with the identified hazards? Are they working well?
- Are there other strategies you would like to adopt to reduce the impacts of climate hazards on your livelihoods?
- What are the means available to help you adopt these new strategies?
- Which factors prevent you from adopting these new strategies?
- The information collected is summarized in the impacts and adaptation strategies table below.

Hazards	Observed impacts	Current strategies (responses)	Asessesing how the current strategy works	Are there other options?	Means available to adopt the new option	Factors preventing adoption of the new option
Drought	Destruction of rainfed crops	Exploitation of non-timber forest products	Works well	Out-of-season farming with large-diameter well	Seeds for out-of-season farming	Low means for underground water pumping

2.2. Tool 2: Resources and vulnerability analysis and adaptive capacities by CRiSTAL

Key concepts

The concepts that have to be mastered in order to roll out this tool have been described for the previous tool (2.1. Tool 1: Climate vulnerability and capacity analysis). In fact, the data collected with Tool 1 is then used to complete the CRiSTAL Excel software sheet to facilitate the analysis of interrelations between livelihood resources, climate hazards and adaptation options. Therefore, for the definition of the key concepts, please refer to Tool 1.

How to facilitate

Note: Steps 2, 3 and 4 have already been dealt with by the resources and hazards map (2.1.1) and the vulnerability matrix (2.1.2). Therefore, the analysis has to be refined by implementing Steps 1, 5, 6, 7 and 8. In case a resources and hazards map and the vulnerability matrix exist, they have to be updated, if necessary, to include all the steps.

1. **Describe the climate context of the area of intervention**. This will require that the team seeks secondary data on climate parameters in the project intervention area.
   The following information is required:
   a. **Regional notes**: this is the supranational region to which the area of intervention belongs. What are the (observed/ expected) climate change impacts in your project area?
   b. **Notes on the countries**: this is the country in which the project is implemented. What are the (observed/ expected) climate change impacts in your project country?
   c. **Notes on the ecological areas**: this is the delimited project intervention area. What are the (observed/ expected) climate change impacts in your project ecological area?
2. Analyze the main climate hazards affecting the project area, the related impacts and the main adaptive strategy for coping with each impact.
3. Analyze significant resources for communities' livelihoods. Enter up to three resources for each category of resources (natural, physical, financial, human and social).
4. Analyze the current impact of climate hazards on the communities' significant livelihoods resources. For each identified hazard, evaluate the extent to which it has an impact on the important resources identified in step 3. Enter data for the three significant livelihoods resources and the three main risks selected. Indicate the impact level by choosing a number from 0 to 5, where: 0 = no impact; 3 = some impact; 5 = very strong impact. Also enter any useful notes on the link between the risk chosen and the resources (such as seasonal variations, the positive or negative nature of the impact) in the item entitled "notes on the risk" in the footnotes.

5. Analyze the significance of resources for implementing adaptative strategies. For each identified hazard, evaluate the significance of the three main resources for the implementation of sustainable adaptive strategies (current or alternative). A maximum of three strategies (current and/or alternative) can be considered in this analysis. Indicate the level of significance by choosing a figure from 0 to 5, where: 0 = not significant; 3 = some significance; 5 = highly significant. Start with the first identified hazard and repeat the exercise for the other two identified hazards. Also enter any useful notes on the links between resources and adaptive strategies in the item entitled "adaptive capacities notes" in the footnotes.

6. Analyze the impacts of the activities selected by the project (for on-going projects) on the most vulnerable livelihoods resources. For each activity, make a comprehensive rough description. At this step, it is necessary to assess the impacts of the project's activities on:

    a. the resources strongly impacted by climate hazards, and;
    b. the resources significant for sustainable adaptive strategies.

During the impact evaluation, enter all modifications suggested for the project activities so as to:

a. strengthen positive impacts on the project;
b. reduce to a minimum the negative impacts on the project, and;
c. make positive for the project the neutral impacts (if applicable).

Please indicate whether the impact is positive, negative or neutral:

a. positive: the project activity increases resources availability or access to them;
b. negative: the project activity reduces resources availability or access to them;
c. neutral: the project activity has no impact on resources availability or access to them.

Propose to review activities if necessary. The reviewed activity should be described.

Project activities (current activity)	**Resources strongly impacted by hazards (automatically generated by the system)**	**Activity impact on the strongly impacted resources by the hazards**			**Reviewed activity (New proposal)**
		Pos	Neg	Neu	
Activity description					Reviewed activity description
	Most significant resources for adaptation (automatically generated by the system)	**Activity impact on significant resources for adaptive strategies implementation**			
		Pos	Neg	Neu	

Example of activity review table: to fill in after each activity

Indicate on the activity review table wether the impact is positive, negative or neutral. If the project activity increases access to resources or resources availabile to the community(ies) in question, it is deemed positive ("**Pos**" on the table). If the activity reduces their access to or availability of resources , it is negative ("**Neg**" on the table). If the project activity has no impact on the population's access to or availability of resources , it is neutral ("**Neu**" on the table).

7. Analyze the sustainability of the modified activities in the face of climate change. In this step, it is necessary to check that the revised project activities are sustainable, considering long-term climate change impacts. In other words, do or will the climate change impacts identified during the first step affect the viability and the success of the revised project activities? Do the revised project activities (unintentionally) make human and natural systems more vulnerable to climate change impacts?

If the answer to these questions is yes, it is necessary at this point to reflect on how climate change will impact the revised project activities and how they may be further modified in a way that human and natural systems can better face climate change.

Revised project activities	Is the revised activity sustainable in climate change (CC) context?	Why or why not?	Further revise the activity
	no		
	no		
	no		

Example of modified activities sustainability analysis table

8. Analyze the synergies or obstacles to the implementation of the revised activities. Once the activities have been definitely revised in Step 7, it is important to identify the synergies and obstacles that may affect their implementation, that is, what may favour or impede the implementation of the revised project activities? Examples include local needs, local capacities and financial, political and institutional support.

Example of synergies and obstacles analysis

Initial project activities	**Revised project activities**	**Synergies and obstacles**

Verification and validation of outputs

Once the data collected have been entered into CRiSTAL Excel software, the expected outputs are automatically generated by the system. They include a report on the climate context and a report on livelihoods.

1. Report on the climate context: risks, impacts and adaptive strategies

Risk	**Impact**	**Main (or alternative) adaptive strategy**	**Notes**
#1			
#2			
#3			

2. Report on livelihoods

Extent to which livelihoods are impacted by the climate risks identified in the climate context (0 = not significant; 5 = highly significant)																		
	Risk	#1						#2						#2				
	Resources	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
Natural Resources																			
Physical Resources																			
Financial Resources																			
Human Resources																			
Social Resources																			

Risk 1																			
Resource significance in implementing the identified adaptive strategies (0 = not significant; 5 = highly significant)																			
	Impacts	#1						#2						#2					
	Adaptive strategies	#1						#2						#2					
	Resources	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
Natural Resources																			
Physical Resources																			
Financial Resources																			
Human Resources																			
Social Resources																			

Risk 2																			
Resource significance in implementing the identified adaptive strategies (0 = not significant; 5 = highly significant):																			
	Impacts	#1						#2						#2					
	Adaptive strategies	#1						#2						#2					
	Resources	0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
Natural Resources																			
Physical Resources																			
Financial Resources																			
Human Resources																			
Social Resources																			

2.3. Tool 3: Participatory analysis of vulnerability factors

Key concepts

Exposure: The fact of being more in contact with a climate hazard. The identification of factors that put some community groups or some livelihoods more in contact with a hazard permits an assessment of their exposure to that hazard.

Sensitivity: The fact of being affected by a climate hazard when exposed to it. The identification of the factors that mean some community groups or resources are more affected by the hazard, despite an equal level of exposure by all, permits an assessment of their sensitivity to that hazard. See Appendix 1.3 for an illustration.

How to facilitate

1. Report the different identified hazards in the hazards mapping, using a suitable tool for presenting the analysis content.

2. Explain to the participants the objectives of the exercise and the relationship with the risks mapping and the vulnerability matrix, already done in Module II.

3. Explain to the participants each concept in the context of the vulnerability factors analysis table, and ensure that they have understood the exercise.

4. Examine each hazard and its impacts, and analyze community members' levels of exposure and sensitivity, while listing explanatory factors.

5. Take a random sample of ten community members and ask the following questions:

    a. Which factors make some groups or locations more affected or increase their contact with the hazard?

    b. Which factors will make some groups or assets (livelihoods, houses, facilities), more affected by the hazard than others, despite an equal level of exposure?

    c. For example, suppose there is drought, how many community members in a random sample of ten will be exposed? The answer may be, for example, five. This corresponds to 50% of the community.

    d. Among the 5 community members you think would be exposed to drought, how many do you think are sensitive? The answer might be, for example, three. This means that 60% of the random sample of ten exposed community members are sensitive, and 30% (60%*50%) of them are drought-sensitive.

Verification and validation of the output

The output expected is presented in the form of a table, as follows:

Hazards (start with the three most significant)	**Impacts observed**	**Exposure**	**Sensitivity**	**Notes on adaptive strategy**
Ex. Drought	Ex. Drop in agricultural production that can lead to food insecurity	Ex. 50% of the community members are exposed. Their fields are located on plateaus that are more exposed to drought than the fields located in the lowlands.	Ex. 60% of those exposed are sensitive because they cultivate corn which is more drought-sensitive than millet; this corresponds to 30% (50%*60%) of drought-sensitive community members.	
Ex: Floods	Crop destruction	60% of the community members are exposed. Their fields are less than 500 m from the river and therefore more exposed to floods than fields in the plateau.	50% of the exposed are sensitive because they cultivate millet which is more drought-sensitive than rice; this corresponds to 30% (60%*50%) of community members that are sensitive to field destruction by floods.	
	House destruction	20% of the members are exposed. They have built their houses in depressions.	50% of the exposed are sensitive. Their houses are built with mud and therefore they are more flood-sensitive than concrete houses; this corresponds to 10% (20%*50%) of community members that are sensitive to house destruction by floods.	

III. MODULE III: RELATING ADAPTIVE CAPACITIES LOCALLY TO GLOBALLY

3.1. Tool 4: Vision-Actions-Partnerships (VAP)

Definition of key concepts

Vision: Conditions desired if the project or intervention is extremely successful. This definition is based on identifying the ideal conditions that communities and partners want to achieve.

Actions: What can community members implement to achieve all the desired conditions called the Vision.

Partnerships: Existing or desired (formal or informal) agreement(s) between two or many parties, which contribute to achieving common objectives. External partner organizations of the project of whom the community wants to ask for support (to be specified) to achieve the Vision.

How to facilitate

1. Explain to the participants what is sought through the identification of the vision, actions and partnerships in the project intervention field.

2. Make sure that the content of each concept is well understood by asking precise questions of a certain number of participants and asking the others to comment on their answers.

3. As much as possible, allow time for participants to reflect individually on their own vision, actions and partnerships; if they can write, ask them to write them down.

4. Once the concepts are well understood, facilitate a group discussion to collect the features of individual visions for the human system and the ecosystem in the face of climate change.

5. Facilitate the formulation of the overall vision by using the collected elements, that is, from all the individual points of view.

6. Facilitate the discussions to identify the actions to be taken for the realization of this vision, and prioritize them.

7. Once the actions have been identified, then identify those that can be implemented by the group and those for which the group needs partners. The actions that can be implemented by the group will be put in the “Actions” column of a Vision-Actions-Partnerships table (see below), and those for which the group needs partner support in the “partnership” column, by identifying the implementing partners and the actions that are expected from them.

8. If the exercise is done separately by men’s and women’s groups, each group will document its results, and synergies will be found between men’s and women’s actions.

Verification and validation of outputs

Once the descriptive elements of the vision have been collected by the focus group, the facilitation team writes a draft vision and submits it to the members of the focus group for their assessment. The separate groups' visions are then put together to write the vision for the entire community. Verification consists of making sure that all the descriptive elements from each focus group adequately appear in the formulated vision. The final output is presented in a finalized table similar to the example below. For another illustration, see Appendix 1.4.

This Vision–Actions–Partnerships table should then be introduced to partners at higher hierarchical levels (communal, departmental, regional, national and transnational), according to the project's scope. This will take into account all the features of the vision, and all the actions needed to achieve this vision. This can also include urbanization, developing building sites (City Council), opening up/roads (Prefect, Mayor, Governor, etc).

Finally, all partners need to validate the Vision, Actions and Partnerships (VAP).

Example of Vision–Actions–Partnerships table by communities

Vision Description of the conditions desired if the project or intervention is extremely successful	**Actions** As a group, what do we expect to do in order to contribute to the vision and/or influence partners who can also contribute.	**Partnerships** Partners with whom the group interacts and intends to influence; Expectations from each of them.
	Ex: Create tree nurseries Reforestation of Noaho banks Move our activities to lands that are not likely to be flooded Develop new income-generating activities, including marketing of fruits, seeds and products in the reforested area, short-cycle stock-breeding	• Directorate of Environment: Provide material for tree nurseries • Provincial directorate of Agriculture, Hydraulics and Fisheries: Produce an extension document on the importance of natural vegetation along rivers • Collectivity: Provide women with lands in areas not likely to be flooded
		• Directorates of meteorology, Environment and agricultural research Institute (INERA) : Training and informing community members on climate change challenges • IUCN: Organize training on sustainable harvesting and processing of non timber forest products • Provincial Directorate of the Ministry of Agriculture, Hydraulics and Fisheries: Organize a workshop with the population to develop alternative climate change adaptive capacities based on the ecosystem approach • Provincial Directorate of Animal Resources : Organize a workshop with population on short-cycle animals breeding techniques
	Etc.;	Etc.;

IV. MODULE IV: PLANNING CLIMATE CHANGE ADAPTIVE CAPACITIES MONITORING AND EVALUATION

4.1. Tool 5: Identify the outcome challenges

Key concepts

Outcomes: Changes in behaviours, relationships, activities or actions of the people, groups and organizations with whom a project or program works directly. Outcomes increase possible impacts on development, but there is not necessarily a direct cause and effect relationship.

Boundary Partners: People, groups and organizations in direct contact with the project or program and those it is expected to influence. They can be grouped into four categories: (1) local collectivities (NGOs, religious groups, community leaders, local administrative departments); (2) civil servants and policy-makers (national organization/ ministry, regional administration); (3) private sector (tourism, fishing, forest company), and: (4) universities and research institutes, and international institutions.

How to facilitate

1. Review the identified vision by following the steps used to develop it (above).

2. Ask the members of each group of boundary partners to answer to the following questions individually: "Ideally, in order to contribute to the vision, how will the boundary partner be behaving or acting differently? What new relationships will have been formed ? How will existing ones change?"

3. Write down the answers down on a teaching aid (flip chart, etc.) that is visible to all the group members to facilitate the discussion, and allow participants to describe how they would like boundary partners to behave. Limit repetitions and allow new words to be added.

4. Then, in plenary, the facilitator reads the information written on the flip chart and the entire group discusses whether, cumulatively, various items show the desired behavioural changes, relationships, actions or activities of the boundary partner. To orientate the conversation, the facilitator asks questions: "Is anything missing or factually incorrect? What is your first 'gut' reaction to the information? Does anything surprise you about the changes included? Is the set of changes overly ambitious or not sufficiently ambitious? Will the boundary partner be better able to contribute to the development process and the vision if he/she is behaving and relating with others in these ways?"

5. If the boundary partners are all present, the facilitator asks them whether the defined outcome challenges makes sense in the "real world" in order to validate it; otherwise, he or she should ask this of the boundary partners later on.

4. Organize the various elements into a single outcome challenge statement that describes the state or nature of the change in the boundary partner. It can be useful to ask one or two of the participants to help draft the statement.

5. Once drafted, the project team reads the outcome challenge statement and asks the group: "If all these changes occurred, would this boundary partner be well placed to contribute to the vision?" The group should respond favourably that the level of change described in the outcome would make a significant difference and is worth working towards.

6. Once outcome challenges have been set for all the boundary partners, it is useful to consider the logic of the vision, the mission of boundary partners and of outcome chalenges, to ensure that they are accepted by the group. Then, the project team reads the set of outcome challenges and asks the group: "If all these changes occur, will the project or program have made the contributions to the vision as it was expected to make?" There should be spontaneous agreement among participants that these would be the project or program's ideal contributions. If someone important has been omitted, they should be added to the list of boundary partners and an outcome challenge statement should be developed. See Appendix 1.5 for illustration.

Verification and validation of the output

Once the outcome challenges have been identified for each partner, ensure they will effectively contribute to achieving the previously validated vision. The outcome challenges are then listed below the vision to make verification and validation easy for all the boundary partners.

We thus have the following table:

Ex. Vision : We, the women of Mogr-Nore village in Burkina Faso, no longer lose our crops because of increasingly intensive floods during Noaho flooding. For our farming activities, we now have access to lands that are not liable to floods. The Noaho banks are totally reforested and their erosion is now under control. We exploit non-timber forest products from the reforested area, which contributes to increasing our incomes. We diversify our activities and better understand climate change issues.	
Ex. Boundary partner 1:: Local communities	**Outcome challenge 1** : The program executives intend to see **local communities** that recognize the importance of, and engage in the planning of Nouaho water resources management activities in partnership with other resource users in their region. Thus, they are able to be constructively involved in discussions and decision-making processes. They can plan and explain their vision of their water resources management activities and goals, which is related to their context and needs. They call for external technical support and expertise as appropriate. They act as champions for the Burkina Faso transboundary water governance concept and motivate the other Volta Basin Authority (VBA) member countries and partners to continue their collaborative work.
Ex. Boundary partner 2:	**Outcome Challenge 2:**
Ex. Boundary partner 3:	**Outcome Challenge 3:**
Ex. Boundary partner 4:	**Outcome Challenge 4:**

4.2. Tool 6: Develop graduated progress markers

Key concepts

Graduated progress markers: These are the milestones that boundary partners will reach as they move towards their intended role in contributing to the vision. Individually taken, progress markers can be considered as simple behavioural change indicators. But their real strength is their collective usefulness.

How to facilitate

1. **Set monitoring and evaluation priorities**. The project team asks the participants if there are some boundary partners that are more important, that incur greater risk than others, or whose experience provides more potential for learning. These partners could be more closely monitored. "More important" can mean that in the near future (for example, in the first 18 months of a 36-month project or program), the plan is to focus project or program resources and efforts on a certain type of stakeholder, or that the latter plays a fundamental role for the vision, or again that changes foreseen for the other identified boundary partners depend on that stakeholder changing first. Higher risk stakeholders are those with whom the program is less related or those that, because of their status, may actually hamper the desired behaviour. If this kind of stakeholder exists among boundary partners, the monitoring and evaluation activities will be first focused on the progress they have made in changing their behaviour towards the established vision.

2. Read the outcome challenge statement. Then and then ask each group of partners to write down answers to the following questions:

    a. How can the program know that the boundary partner is moving towards the outcome?
    b. What milestones will be reached as the boundary partners move towards their intended role in contributing to the Vision?

The group should try to think of behavioural changes, activities or relationships that can be expected to happen at the beginning, as well as the situations that represent deeper change and thus, take more time. Participants write down one idea per index card.

3. Classify the ideas collected in the index cards, asking participants to select those that represent: (1) the minimum outcomes that the program can expect the boundary partner to achieve; (2) what they would like to see achieved if the partner got more involved, and; (3) what they would love to see as results if the partner got totally involved.
   Note that the results that are wished for or ideals cannot be controlled by the group or by the project or program, but depend on the partner's involvement. Any duplication in cards should be eliminated. Complementary ideas should be combined on a single index card. The progress markers should represent observable behavioural change, actions or relationships of the boundary partner. If the group identifies progress markers that would be difficult to observe, the facilitator asks: " How could you tell if this change happened?" In other words: "What would you see that would tell you if the change happened, if you visited the boundary partners ?"
   The group discusses the behavioural changes that have been outlined and arranges them in order of the change process, from simplest to most complex, representing the increasing involvement level of the partner. Ideally, the number of progress markers should be limited according to the resources (human and financial) that can be invested in the monitoring and evaluation activity, otherwise there will be too much data to collect.
   If the group identifies too many progress markers for the list, the facilitator asks the

group to identify those that best indicate the boundary partner's commitment and better show that change is occurring.

4. Once the group is satisfied with the list, the project team reads the outcome challenge statement and the set of progress markers, and asks: "Does this represent a logical picture of the complexity of the change process through which the boundary partner would progress when moving towards the outcome? Are any important elements missing?" The group should agree that even if the set of progress markers may not describe every change, it does capture the major milestones.

Verification and validation of the output

The output expected is a table summarizing the various levels of the expected changes for each boundary partner towards achieving the outcome challenge. For more illustration, see Appendix 1.6.

Verification consists of making sure that individually taken, the markers represent behavioural change indicators and that all the markers are consolidating and showing progress towards the outcome challenge. If not, provision should be made to review the graduated progress markers.

Example of graduated progress markers table

Outcome Challenge 1: The Project for Improving Water Governance in the Volta River Basin (PAGEV) project/program intends to see **local communities** that recognize the importance of, and engage in the planning of Nouaho water resources management activities in partnership with other resource users in their region. Thus, they are able to participate constructively in discussions and decision-making processes. They are able to clearly plan and articulate a vision of their water resources management activities and goals that is relative to their context and needs. They call upon external technical support and expertise as appropriate. They act as champions for Burkina Faso transboundary water governance concept and motivate the other VBA member countries and partners to continue their collaborative work.	
We expect to see local communities:	
1	Participate in regular VBA partners meetings
2	Establish a community structure for Nouaho water management in the partnership that ensures that all local interests are represented (mechanisms for setting up the structure)
3	Acquire new skills for involvement in the integrated water resources management (IWRM) activities
4	Contribute the minimum human and financial resources necessary to get the IWRM committee operational
We would like to see local communities:	
5	Articulate a vision for the transboundary governance of Nouaho waters that is locally relevant
6	Promote the IWRM concept and their experiences in the area.
7	Expand the partnership to include all the main Nouaho water resources users.
8	Call upon external experts when necessary to provide information or meet technical needs.
We would love to see local communities :	
9	Play a leading role in water resources management with a view to long- and medium-term benefits.
10	Share lessons and experiences with other communities nationally and internationally to encourage other initiatives of transboundary water resources management.
11	Influence policy debates and policy formulation on resource use and water resources management at the national, regional (West African) and international levels.

4.3. Tool 7: Elaborate the results chain

Key concepts

Results chain : Steps that are intended to achieve a final result, which is a change that can be described and measured, and attributed to the links between activities, outputs and outcomes. Change implies a visible transformation of people, groups, organizations, communities, country, while the causal links illustrate the relationship between an action and the resulting change.

Activity: Actions taken, or to be taken, to produce specific outputs.
Output: The products, capital goods or services that result from an activity or activities that have been implemented. Therefore, these are achieved activity(ies) outputs.

Outcome : Direct short- or mid-term effect resulting from beneficiaries' use of products, equipment or services provided by a project or program.

Impact: Positive and negative, primary and secondary long-term effect produced by a development intervention, directly or indirectly, intended or unintended.

Indicator: Information that helps a project or program manager or a policy-maker assess a situation.

How to facilitate

The results chain development process is the responsibility of the project or program team that now has all the information it requires to plan the development intervention and ensure monitoring and evaluation.

1. **Identify activities**: Actions have been identified with the Vision–Actions–Partnerships tool, and they have to be coherently grouped into activities.

2. **Evaluate** the resources necessary to undertake the identified activities.

3. **Define outputs**: From the activities or groups of activities, identify the outputs (products or services) resulting from these activities.

4. **Define outcomes**: Behavioural change, actions and relationships have been identified for each boundary partner in the process to define outcome challenges. They have to be analyzed to define the change of state related to these change of behaviour, activities or relationships with boundary partners.

5. **Define impacts**: From the vision as described by boundary partners, at this point the purpose is to define the long-term effects that will be produced by the project or program.

6. **Develop indicators**: For the outputs, results and impacts that have been defined, develop indicators by responding to the following question at each level of the results chain: "How can we know that we have achieved our objectives?" The answer to this question, at the level of outputs, results and impacts, leads to a definition of appropriate indicators for monitoring and measuring the change of status.

Verification and validation of the output

The output expected from this tool is a table summarizing the results framework of the adaptation action identified by rolling out tools 1 through 6.

Its validation consists of checking the logic of the results chain by responding to the following questions:

a. Will the implementation of the identified activities generate the expected outputs?
b. Will the use of the outputs generated by the boundary partners that implemented the outcome challenges generate the change of status expected?

Note : Some actions may correspond to activities.
Ind. = Indicator; $ = budget.

<table>
<tr><th>Resources</th><th>Actions</th><th>Activities</th><th>Outputs</th><th>Outcomes</th><th>Impacts</th></tr>
<tr><td>$ and trainers, field, local workforce</td><td>Create tree nurseries</td><td>A1. Produce seedlings</td><td rowspan="5">Nouaho banks are protected

Ind: 50% of Nouaho banks will be duly protected within 2 years</td><td rowspan="5">Crops are less exposed to floods

Ind: 50% reduction in the number of flood-exposed fields within 2 years</td><td rowspan="5">Nouaho bordering populations' food security is improved.

Ind: 25% increase of the number of households that have food security by the end of the program or project.</td></tr>
<tr><td>$, technician, local workforce</td><td>Reforest the banks</td><td>A2. Reforest Nouaho banks</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>$, trainers</td><td>Move farm fields from areas exposed to floods</td><td rowspan="2">A3. Delocate the fields from the Nouaho banks</td></tr>
<tr><td>$, city council</td><td>Provide plots in areas that are not liable to floods</td></tr>
</table>

4.4. Tool 8: Elaboration of monitoring and evaluation information table

Key concepts

Monitoring: Regular collection of information or data in relation with the project or program indicators that is used to check the short- and mid-term progress.

Evaluation: Assessment or judgment on the value or interest of the project or program indicators that contributes to decision-making and improves the implementation of the project or program.

How to facilitate

1. The project team elaborates proposals for the content of the monitoring and evaluation table, which will be the basis for discussions with partners.
2. Take the information contained in the results of the outcome challenge process (tool 5), progress markers (tool 6), and results chain (tool 7).
3. Using this information, construct an integrated VAP (tool 4) and results chain (tool 7) table in the first two columns (c1 and c2); with vision corresponding to the impacts, actions to activities and outputs; and partnerships to outcomes (intermediate).
4. Add to these two columns (VAP and results chain) other columns as follows: (c3) indicators and milestones; (c4) methodologies to use for collecting monitoring and evaluation data; (c5) people in charge of data collection; (c6) data collection frequencies, and; (c7) people in charge of data analysis.

Verification and validation of the output

The output expected from this exercise is the monitoring and evaluation information table (see example below) that summarizes what has to be monitored and evaluated, how to proceed and who will do it.

Verification consists of making sure that the collection and analysis methods selected will provide information on the identified indicators/ milestones and measure the progress made. If this is the case, the monitoring and evaluation information table is validated.

Vision-Actions-Partnerships (VAP)	Results chain	Milestones/ Indicators	Data collection method	Who will collect the data?	Collection frequency	Who will analyze the data?
Actions	Activity 1	Process indicator 1	Implementation monitoring tools	To be determined	Monthly	To be determined
	Activity n	Process indicator n	Implementation monitoring tools	To be determined	Monthly	To be determined
	……	……	……	……	……	……
	Output 1	Output indicators 1	Observations, measures or surveys	To be determined	Quarterly	To be determined
	……	.....	……	.....	.....	.....
	Output n	Output indicators n	Observations, measures or surveys	To be determined	Quarterly	To be determined
Partners	Outcome challenges/ - Partner 1	Progress markers and intermediate result indicators- Partner 1	Outcome journal/ Most significant change/ and surveys	To be determined	Bi-annual	To be determined
	…….	……	……	.....	……	.....
	…….	……	……		……	
	Outcome challenges/ - Partner n	Progress markers and intermediate result indicators- Partner n	Outcome journal/ Most significant change/ and surveys	To be determined	Bi-annual	To be determined
Vision	Impact 1	Impact indicators 1	Surveys and monitoring data	To be determined	Annual/ bi-annual	To be determined
	……	……	……	.....	……	.....
	……	……	……	……	……	……
	Impact n	Impact indicators n	Surveys and monitoring data	To be determined	Annual/ bi-annual	To be determined

V. MODULE V: IMPLEMENTING THE IDENTIFIED ACTIONS FOR MONITORING AND EVALUATION

5.1. Tool 9: Develop an operational protocol for monitoring and evaluation activities

Key concepts

Protocol: Accurate description of the procedure (form) or the modus operandi for monitoring and evaluation activities. Forms to be used for the implementation of monitoring and evaluation activities.

Baseline situation: Values set at the beginning of an intervention and on the basis of which the performance of the project or program will be evaluated.

Reference: A norm that permits assessment of the performance or the results achieved.

How to facilitate

1. The project team prepares a protocol on the basis of the monitoring and evaluation table above.
2. Assemble the tools for collecting and analyzing the baseline data and those for monitoring and evaluation.

Verification and validation of the output

The expected output is a protocol describing the procedures for monitoring and evaluation activities. This protocol should at least include:

a. the monitoring and evaluation information table;
b. the types of data (monitoring parameters) to be collected for each indicator/milestone included in the information monitoring and evaluable table and their reference values if available;
c. the baseline data collection and analysis tools, if the reference values are not available;
d. the collected and analyzed data management and transmission tools;
e. the training needs of those in charge of monitoring and evaluation.

5.2. Tool 10: Develop stories on the most significant changes (MSC)

Key concepts

Story: Recounting of real facts or events that occurred in the community or to a community member becaues of the contribution of the project or program.

Areas of change: Possible category of stories about change. These categories may depend on community members' quality of life, the nature of their involvement in development activities, the sustinability of activities of community members' organizations, and about the sustainability of biophysical aspects as well. These categories can be defined from the progress markers tables. Categorizing stories of changes helps prepare for the way that collected stories will be managed.

Change: Moving from one situation to another, either in the quality of life or the nature of involvement in an action, and also in the sustainability of an activity or organization.

Significant: Of particular importance to a stakeholder or beneficiary.

How to facilitate

1. Discuss with partners to validate the areas of change that are to be monitored.
2. Prepare the form for the elaboration of the stories on the most significant changes or MSC.
3. Identify in a participatory way a sample of partners that will elaborate stories that capture or express the most significant changes.
4. Collect MSC stories.
5. List the stories according to the areas of change to be followed up.
6. Select the most significant story(ies) per area.
7. Report the story(ies) selected as the one(s) that most significantly express(es) the changes that occurred thanks to the project or program.

Verification and validation of the output

The main output is a story presented as a form that has been duly filled in. The validation process involves convening a meeting with volunteers whose role is to evaluate the stories proposed and select the most significant ones. We therefore proceed in the following way.

a. Read the different stories collected per area of change.
b. Collect evaluators' comments.
c. Invite evaluators to vote on the different stories proposed.
d. Look for a consensus in case of vote divergences relating to the stories.
e. Select a maximum of two stories to reflect the diversity of the points of view.

Name of the story teller: .....

Name of the story reporter: .....

Site: .....

Reporting date: .....

Do you want your story to be told to other people? Yes: ..... No:.....

Key questions

5. Tell me how you (the storyteller) first became involved in the program and what is the level of your current involvement?

6. From your point of view, describe a story that features the most significant change from your participation in the program:

_____
_____

7. How has this change been the most significant for you?

_____
_____

8. How has the program team work contributed to this change, if indeed it has?

_____
_____

5.3. Tool 11: Develop an outcome journal

Key concepts

Journal: Document in which are noted data or information on what is happening or what has happened. The data or information noted are specifically on the changes that happened thanks to the project or program.

Outcomes: (See 4.1. Tool 5: Identify the outcome challenge)

How to facilitate

1. Create an outcome journal for each boundary partner identified as a priority by the project or program.
2. Summarize the outcome challenge for each boundary partner and the progress markers identified using tools 5 and 6.
3. Define description modes for outcome challenges and graduated progress markers. This is to identify who will give the information and how the information will be provided.

Verification and validation of the output

The output expected is an outcome journal for each boundary partner. In general, this journal includes for each partner:

a. the outcome challenge;
b. the progress markers described above (tool 6);
c. a description of the change level (low, medium or high);
d. a designated space in which to indicate which boundary partners have brought changes.

Verification implies that the change shows a relationship to the outcome challenge, even if it does not correspond to any of the predetermined progress markers. In fact, the progress markers should not give a rigid description of the way the change process should occur, but rather the main milestones (even those not predetermined) that mark progress towards the objective, that is, the achievement of outcomes.

Therefore, verify that the described change corresponds to a milestone marking progress towards the achievement of the outcomes, and does not only consider the predetermined markers. If this is the case, then the journal is valid.

A file has to be created for each partner in order to keep the various outcome journal forms (see example below) filled in and up to date, and this will be analyzed regularly to draw conclusions aimed at improving the project or program performance.

CHANGE DESCRIPTION :
CONTRIBUTING FACTORS AND STAKEHOLDERS (INCLUDING PARTNERS)
SOURCE OF EVIDENCE:
LESSONS AND REACTIONS/ REQUIRED PROGRAM CHANGES :

APPENDICES

Appendix 1. Examples of results of tools tested with communities and partners

Appendix 1.1. Exercise on resources and hazards mapping by the women of Sectoré and Komba communities, Tilabéry rural commune, Niger
(Tool 1: Section 2.1.1. Resources and hazards mapping)

The women of Sectoré and Komba communities identify livelihood resources and climate hazards in their community with the help of the participants in the training workshop on the tools. The map they are developing here is represented on craft paper by a member of the women's group, using symbols for resources and different colours for hazards.

Source: Extract of Niamey training workshop, Niger, from 8 to 14 November 2010 (photo: Hubert N'Djafa).

Appendix 1.2. Resources flood vulnerability matrix
(Tool 1: Section 2.1.2. Climate hazard vulnerability matrix)

This example of a climate hazard vulnerability matrix, in which the hazard is flooding, shows that for the same hazard, the community members that have been interviewed perceive differently the vulnerability level of their resources, on a scale of 0 to 5, where 0 = no risk of impact on livelihood resourcs and 5 = highest risk to livelihood resources.. This is certainly due to the fact that the level of exposure and sensitivity of their resources to this hazard is different.

	Burkina Faso		**Ghana**	
Communities Resources	**Mogr-Noore**	**Beka**	**Mognori**	**Kubori**
Agricultural lands	4	5	4	5
Stockbreeding	4	5	1	0
River water	5	4	4	5
Forest resources	2	1	2	2
Roads/tracks	5	5	3	0

Source: Extract of the case study of the Project for Improving Water Governance in the Volta River (PAGEV-IUCN)

Appendix 1.3. Participatory analysis of flood vulnerability factors
(Tool 3: Section 2.3, Participatory analysis of vulnerability factors)

All community members are not necessarily exposed to floods. All those who are exposed are not all sensitive. Floods impacts are not necessarily the same in all communities.
Source: Extract of the case study of PAGEV-IUCN

Country	**Communities**	**Impacts**	**Exposure (%)**	**Sensitivity (%)**
	Mogr-Noore	Loss of crops	70	50
		House destruction	100	70
		Loss of animals	60	40
	Beka	Loss of crops	70	60
		Loss of lands	100	70
		Loss of habitats and road obstruction	80	60
	Mognori	Loss of crops	70	50
		Degradation of the river bank	40	20
		Loss of vegetation	40	20
	Kubori	Loss of crops	70	70
		Loss of animals	40	20
		Food insecurity	70	50

Appendix 1.4. Vision, Actions, Partnerships by Mogr-Noore community members, Burkina Faso (Tool 4: Section 3.1 Visions–Actions–Partnerships)

Note that the vision developped on the basis of the vision elements below goes beyond the intervention framework of PAGEV and the duration of any project. But it represents the ideal conditions Mogr-Nooré community members would like to have.

Vision: A Mogr-Nooré community in good health (health), having solid social facilities (habitats, roads), abundant and sustainable natural resources (trees and pasture), healthy, sufficient and secured food resources (water, food and livestock) in a synergy of actions.		
Elements of the Vision	**Actions**	**Partnerships**
1. No loss of crops or of good crop year	Dyke construction and abandonment of lowlands	Community, Department of Agriculture, Projects
2. No loss of livestock or livestock abundance	Fence construction out of the lowlands area	Community, City Council, Livestock Department, Project
3. No house destruction or provision of solid houses	Concrete foundation + 2 concrete layers	Community
4. No unroofed houses or unsecured roofs	Strengthening the roofs	Community
5. No uprooted or unsecured trees	Reforest the banks as a windbreak	Community, Department of Environment, Projects
6. Good health	Reforestation	Community, Department of Environment, Projects, Department of Health
7. Water abundance	Protecting banks and constructing dams	Community, City Council, bank protection Committee, Project
8. No famine or threat to food security	Increasing food availability or practicing out-of-season farming	Community, Department of Agriculture, Project, NGO
9. Availability of pasture	Protect environment or produce fodder	Community, Livestock Department, Project, NGO

Source: Extract of the case study of PAGEV-IUCN

Appendix 1.5. Outcome challenges identification sheet
(Tool 5: Section 4.1 Identify the outcome challenge)

Vision: A Mogr-Nooré community in good health (health), having solid social facilities (habitats, roads), abundant and sustainable natural resources (trees and pasture), healthy, sufficient and secured food resources (water, food and livestock) in a synergy of actions.	
Boundary partner 1: Communities	**Outcome Challenge 1:** PAGEV managers want Mogr-Nooré communities to use more the health centres and restore the river banks. They are able to call upon external technical support and expertise as appropriate. They act as champions of the sustainable management of banks based on the ecosystem approach and encourage the other members of the partnership to continue their collaboration.
Boundary partner 2: Authorities and Technical Structures	**Outcome Challenge 2:** PAGEV managers want authorities and public technical structures to pay more attention to local capacities for planning and managing Nakambe subwatershed resources. They are more operational in supporting and advising communities for sustainable resources management and new partnerships development.
Boundary partner 3: Associations	**Outcome Challenge 3:** PAGEV executives want local NGOs to be more actively involved in the search of funding to support Mogr-Noore communities develop and implement activities for the sustainable management of Nakambe subwatershed resources. They are more operational in counselling regarding associative management techniques.

Source: Extract of the case study of PAGEV-IUCN

Appendix 1.6. Mogr-Nooré Community graduated progress markers identification sheet, Burkina Faso (Tool 6: Section 4.2 Develop graduated progress markers)

A progress markers sheet should be developed by the project's boundary partners. Take care to limit the number of progress markers to reduce monitoring costs, and note that the pre-identified progress markers are not fixed all along the intervention.

Outcome Challenge 1 : PAGEV managers want Mogr-Nooré communities to use more the health centres and restore the river banks. They are able to call upon external technical support and expertise as appropriate. They act as champions of the sustainable management of banks based on the ecosystem approach and encourage the other members of the partnership to continue their collaboration.	
Mogr-Nooré community members are expected to:	
1.	be involved in sensitization meeting on HIV-AIDS and banks restoration
2.	Set up village committee for promoting health and protecting banks
3.	…
4.	…
We would like Mogr-Nooré community members to	
1.	Stop cultivating on the river banks
2.	Foster banks management based on the ecosystem approach
3.	…
4.	
We would love Mogr-Nooré community members to	
1.	Self-finance the restoration of the river banks
2.	Influence the debates on Nakambé transboundary water resources management
3.	….
4.	…

Source: Adapted from the data of the case study of PAGEV-IUCN

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