GUIDE

Guide to best practice

Integrating adaptation to climate change into development projects

geres

Coordination SUD
Solidarité Urgence Développement

Coordination SUD
(Solidarity - Relief - Development)

The French platform for international solidarity NGOs, **Coordination SUD**, was established in 1994 and now brings together over 130 NGOs engaged in emergency humanitarian and development assistance activities. As part of its mission to support advocacy and international relations, it has set up various working committees to enable NGOs to harmonise their positions and work on collective advocacy.

The Coordination SUD Climate and Development Commission includes the following NGOs from Coordination SUD and Climate Action Network France (CAN-F): Action contre la faim (ACF), Agronomes et vétérinaires sans frontières (AVSF), Alofa Tuvalu, Amis de la Terre, Care, Centre d'actions et de réalisations internationales (Cari), CCFD-Terre Solidaire, Centre d'entraînement aux méthodes d'éducation active (Cemea), Crid, Dossiers et débats pour le développement durable (4D), Eau Vive, Greenpeace, Gret (leading the commission), Groupe de recherche et de réalisations pour le développement rural (GRDR), Groupe énergies renouvelables, environnement et solidarité (Geres), Handicap International, Helio International, Initiative Développement, Ingénieurs sans frontières (ISF), Médecins du Monde, Oxfam France, Planète Urgence, UCPA, WWF France.

Several observers also sit on the commission : Bolivia INTI, Centre national de la recherche scientifique (CNRS) – Centre Koyré, Fondation Nicolas Hulot (FNH), and the Groupe Urgence réhabilitation développement.

The commission was created in 2008 as part of the monitoring programme put in place under the French presidency of the European Union. It has three objectives:

- to encourage members of the commission to exchange experiences and discuss their practices;
- to raise awareness of climate change-related issues among French international solidarity NGOs, and enhance their capacity to incorporate them into their projects;
- to build collective positions on the issues associated with tackling climate change in developing countries.

Most of the work focuses on monitoring international negotiations on implementation of the United Nations Convention on Climate Change and the Kyoto Protocol, and the adoption of a new, ambitious and equitable climate agreement.

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Photo: Farmer shows groundnuts to programme manager, Malawi, NAFSAM/Commission européenne/EuropeAid

This publication is a translation based on paper published in French in November 2011, i.e. before the Durban Conference on climate change. Therefore, it does not take into account any of the decisions and progress made in Durban.

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1 Francophone network concerned with climate change and development, with over 50 members, mostly African NGOs. The network is coordinated by Enda-Tiers Monde and the Climate Action Network – France (RAC-F): www.climat developpement.org

Introduction

The forecasts are inexorable. Current commitments to reduce emissions by developed countries are likely to result in a rise in average global temperature of more than 3°C. The impacts of this level of global warming on countries, resources and ways of life are undetermined and still poorly understood at the local level. The most vulnerable countries, in particular the least developed countries and small island states, will be the most affected, especially by increased risks of natural disasters, water shortages, desertification and changes in rainfall.
Sharing of experience and discussion on this subject at various levels, local, national and regional, have led to advances in thinking about adaptation to climate change in international negotiations. In 2009 the 15th Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) in Copenhagen emphasised the need for urgent action and hence for funding for adaptation. In Cancun in 2010, at the COP 16, the Parties decided on the creation of a common framework for adaptation activities: the Adaptation Framework, which is still to be defined and operationalized.

However, there are a number of difficulties with putting adaptation into practice, via a common conceptual framework:

- *Sharing a set of common ideas, across diverse countries, cultures and ways of life.* There have been important advances in the awareness and understanding of the challenges of adaptation, and notable scientific and academic research on the subject. However adaptation remains a vague concept which is poorly operationalized, especially for local actors: it is vague in terms of its links with mitigation and with development, and poorly operationalized in terms of its application to community and national level development projects. But this vagueness is counterbalanced by the rich variety of research which is already underway, and by the stock of experience which already exists.

- *The multiplicity of the impacts of climate change, and the need to distribute and prioritise cooperation activities and financial support* (geographical and sectoral allocation of resources)*;*

- *The gap between short term and long term development projects:* Because of the difficulty of forecasting the future evolution of human societies, setting in train successful development trajectories which allow for real – and especially climatic - constraints has become a real problem. There is great uncertainty about the future, and we suffer from restricted vision when looking forward in the search for a development model which will work for all, developed and developing countries alike.

The Climate and Development Commission of Coordination SUD aims to contribute to clearer definition of the concept of adaptation, with both NGOs and public authorities in mind, in order to support the implementation of territorial adaptation strategies. In pursuit of this aim, the Climate and Development Commission conducted an exercise in 2011 to reflect on adaptation, which was carried out by GERES with the joint leadership of 4D and CARI.

Two activities were conducted which have led to the compiling of this practical guide:

• **A review of current practice or "state of the art"** among members of the Commission, covering their technical knowledge, their perceptions, and best practice linked to issues of vulnerability and adaptation.

• **A comparative study** of methods of analysis of vulnerability and of capacity to adapt to climate change.

PART 1

Adaptation to Climate Change: The viewpoints of international solidarity organisations in France

Summary

This first section contains the findings of the first phase of a reflection on adaptation to climate change within the Climate and Development Commission of Coordination SUD, carried out by GERES, 4D and CARI. It presents the current state of play in perceptions by the NGOs represented on the Commission of climate change adaptation issues and in their current practice in the area of adaptation.

As communication about climate change develops, so do the perceptions and awareness of the NGO members of the Climate and Development Commission of Coordination SUD with regard to the issues involved. Today almost all of these organisations refer to climate change in the terms of reference of their projects.

Although the question of adaptation to climate change has taken on more importance recently, after a long period of relative neglect in international debate compared with the limiting of emissions of greenhouse gases, its integration into NGO strategies remains at an early stage. Only half of the NGOs have referred to it in the past four years, although the subject has become a strategic issue for almost all of them. This strategic interest is seen in particular in the planning of adaptation projects to be launched during the coming year, in the demand for training, and in a stronger involvement in advocacy and in monitoring of international negotiations.

There are still many obstacles to the integration of the adaptation issue into the development projects of solidarity NGOs, which can be explained by:
- A general lack of knowledge about the topic, and uncertainty surrounding the nature of the local impacts of climate change;
- The thorny issue of availability of funding for adaptation measures;
- The blurred line between development and adaptation;
- The difficulty of analysing local vulnerabilities and capacities for adaptation.

This report sets out in detail the reasons for these obstacles, and the solutions to them which the NGOs themselves are attempting to apply. It also explores new possible routes for NGO involvement in the processes of adaptation to climate change. A select bibliography, as well as text boxes on funding and practical examples, are intended to provide signposts to guide the reader through the voluminous existing information on adaptation and development.

Preamble

AIMS

Within the Climate and Development Commission of Coordination SUD, GERES was responsible for conducting the reflection on adaptation to climate change, together with 4D and CARI.
To do this a **state of the art study** was carried out among the members of the commission on their technical knowledge, on their perceptions, and on best practice in relation to questions of vulnerability and adaptation. This aimed in particular to identify:

- The boundaries between development and adaptation activities established by these development partners in their field projects;
- The strategies pursued by the Commission members in their projects in 2009-2010;
- The demands of their funders;
- The difficulties which limit the extent to which adaptation issues can be taken into account in international solidarity NGO projects (lack of information on climate change; uncertainty about the long term future; local constraints; lack of lesson learning and poorly developed cooperation with research institutions etc.)

METHODOLOGY

Five sub-activities were carried out to deliver the "state of the art" review of current practice.

- A literature and internet review of resources on adaptation and on methods for analysing vulnerability and adaptation capacity. For a select bibliography see the appendix.

- Following on from this preliminary work to scope the topic, an in-depth questionnaire was drawn up by GERES, in partnership with 4D and GRET, and distributed to members of the Climate and Development Commission of Coordination SUD, as well as to other external resource-persons.

The questionnaire aimed to contrast the adaptation theme (from both the operational and institutional points of view) with the NGO realities. It included the following categories:

- Vision and strategy (and associated terminology) of the NGO vis a vis adaptation
- Working practices of the NGO in terms of adaptation
- Positioning, advocacy stance or point of view of the NGO concerning the "adaptation" aspect of international climate change negotiations.

Thirteen questionnaires were returned, from the 30 members of the Climate and Development Commission of Coordination SUD (a 43% response rate). The list of NGOs which responded is given in the appendices.

- **An "abbreviated" questionnaire** was distributed to members of the Réseau Climat & Développement. It aimed to elicit responses from Southern NGOs on adaptation. Fifteen questionnaires were returned. The list of responding NGOs is given in the appendices.

- **A project launch workshop** was held on 10 May, 2011, bringing together 15 participants representing 4D, CARE, GERES, GRET, IRAM, Médecins du Monde, and the Climate Action Network-France (RAC-F in French).

This workshop aimed to provide a general introduction to the aims and expected results of the work of Coordination SUD on adaptation to climate change. It also offered an opportunity for NGO members to exchange information on projects and working practices concerned with adaptation. Finally it launched a reflection on a number of issues in adaptation:
- Is adaptation a development activity like others?
- Establishing climate change scenarios: an indispensable first step in adaptation projects?
- Who are the actors in adaptation, and what are their respective roles?

- **A series of interviews was held** with resource-persons identified in advance, in order to complement the findings of the literature review, of the questionnaire and of the exchanges between NGOs, and also to seek clarification of some specific questions.

SCOPE OF THE STUDY

In view of the relatively small number of questionnaires analysed, there was no question of aiming at findings representative of French NGOs as a whole.
The research is qualitative and aims to shed light on the perceptions of development NGOs which are members of the Climate and Development Commission of Coordination SUD.

In addition, the limited time available for the research has unavoidably reduced its scope.

SOME POINTS OF TERMINOLOGY EXPLAINED

> Adaptation

There are various definitions of **adaptation**; some of these are given below. None is universally definitive, and none fits perfectly the operating context of international solidarity and development NGOs. Adaptation is:

Oxford Dictionary
"the action or process of adapting or being adapted".

Website of the UNFCCC Secretariat
"Practical steps to protect countries and communities from the likely disruption and damage that will result from effects of climate change. For example, flood walls should be built and in numerous cases it is probably advisable to move human settlements out of flood plains and other low-lying areas…"

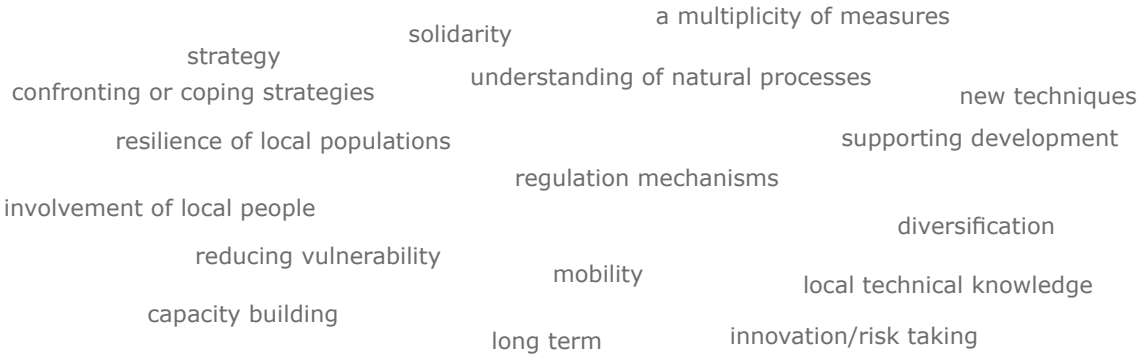
United Nations Development Programme (UNDP)
"A process by which strategies to moderate, cope with and take advantage of the consequences of climatic events are enhanced, developed, and implemented" (UNDP, 2005).

European Commission, 2007
"Adaptation aims at reducing the risk and damage from current and future harmful impacts cost-effectively or exploiting potential benefits. Adaptation can encompass national or regional strategies as well as practical steps taken at community level or by individuals."

International Panel on Climate Change (IPCC) 2001
"Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities."

Faced with this semantic difficulty, we asked the NGOs to give three words or expressions of their own associated with various concepts. While some of these, such as "vagaries", "risks" or even "resilience" have similar definitions, each NGO gave its own definition of adaptation, which confirms that the term itself is at a crossroads of development issues, of anti-poverty and anti-climate change actions. Adaptation is a term which has meaning in many different fields including the scientific, the social, the political and the economic. Above all adaptation raises questions about cooperation, governance and even the long term aims of development strategies themselves.

Finally, the following cloud of expressions cited spontaneously by the NGOs may itself constitute a kind of definition, combining together causes, objectives, means and ends:



From the questionnaires and our conversations with NGOs we conclude that adaptation consists of the following:

Adaptation is a process of continuous improvement of all activities including emergency actions, undertaken with a long term vision. This process is built on the strengthening of the resilience of material assets, people and ecosystems, undertaken with a view to the future and through making links between technologies, sectoral policies, integrated resource management and the education of local people in each country.

> Vulnerability

Vulnerability to climate change is "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 change and variation to which a system is exposed, its sensitivity, and its adaptive capacity" (IPCC, 2007). While climate risk is an external factor for global populations as a whole, vulnerability is something quite different. It refers to incapacity to manage risk without being forced to make choices which compromise the well-being of the population over time [2].

Many project holders however argue that vulnerabilities should not be viewed solely in terms of climate change, since climate change will merely aggravate vulnerabilities that are already underlying and which need to be mitigated in the first place (for example vulnerability to international market prices or land tenure practices etc.).

2 UNDP Human Development Report 2007-2008 http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf

Adaptation: a matter of recent interest for the International Solidarity Organisations (ISOs) of Coordination SUD

The Recent Evolution of Perceptions

Most of the organisations responding to the questionnaire have the majority of their projects in regions which are particularly sensitive to climatic risks. This no doubt explains their interest in the topic.

Almost unanimously these organisations report that their perception of climate change issues has developed changed in the last four years. The survey carried out by GRET in 2007[3] on the consideration given to adaptation by French international solidarity organisations showed that there had been a change in perception by 90% of the NGOs surveyed since 2000. How climate change is seen is therefore perpetually evolving. In addition we can observe that the theme of adaptation has only recently taken its place in debates and negotiations, unlike the campaign to limit emissions of greenhouse gases (mitigation). Nevertheless, as several questionnaire respondents made clear, this focus on the issue of adaptation should not lead us to forget the necessity of reducing carbon emissions in the North and of engaging in low carbon development in the South.

Several NGOs noted that these issues are perceived more clearly thanks to increased scientific research and more involvement by the media; having said this, they also note that there is insufficient attention paid to researching solutions.

9 NGOs out of the 11 who responded are now making explicit reference to climate change in the design of their projects. In 2007 this proportion was only just over half.

However this figure needs to be qualified in two ways:

- Only a small proportion of projects in the project portfolios of NGOs refer to climate change: two thirds of the organisations which say that they refer explicitly to climate change in their projects do so for only half of their projects at most. So the acknowledgement of climate change is not systematic.

- Awareness of the issues of climate change in development projects seems to be more advanced for limitation of greenhouse gas emissions (or what is known as low carbon development), than for the aspect of adaptation to climate change. In fact only half of the NGOs surveyed have implemented an adaptation project, or responded to a call for projects which explicitly refers to adaptation, in the last four years.

Integration of adaptation into the emergency and development projects of NGOs is still a matter of difficulty, according to the responses to the questionnaire. This can be explained by three main factors:

The influence of donor approaches

- This is partly due to the small numbers of donors funding adaptation projects at present; only a few large donors seem to have introduced adaptation to climate change into the criteria for eligibility to access their funds;
- Difficulty in accessing funds earmarked for adaptation.

3 Chetaille, Anne, La lute contre le changement climatique: quel rôle pour les organisations de solidarité internationale? Gret, 2007: http://www.gret.org/wp-content/uploads/08329.pdf

Uncertainty with regard to impact, and weakness in long term vision

- Lack of scientific knowledge about the local impacts of climate change;
- Difficulty in analysing vulnerability and adaptation capacities in a society at any chosen level.

Links between adaptation and development which are close but ill-defined

- any NGOs consider that implementing "*development as usual*" constitutes an adaptation strategy in itself.

Funds for Adaptation are Difficult to Access

Of the NGOs which reported having implemented adaptation projects, all were funded by bilateral or multilateral aid programmes. None had attempted to access UNFCCC or Kyoto Protocol funds (the Global Environment Facility (GEF), the Adaptation Fund, the Special Climate Change Fund). Three quarters of those surveyed reported that they lacked the procedural and practical information they needed to be able to apply for *ad hoc* funding. In reality, few funding streams from these Funds are available for small projects. In addition the lack of institutional capacities in the South for formulating projects is an inhibiting factor.

In 2011 the Climate and Development Commission of Coordination SUD carried out a parallel reflection exercise on the **governance of climate funding**, led by the RAC-F as an invited member of the commission. This reflection was designed to contribute to gaining a more complete overview of funding for adaptation, of good practice in terms of governance, and of the modes of attribution of these funds.

BOX 1

> Summary of main sources of funding for Adaptation

The **Nairobi Work Programme** on adaptation to climate change (set up within the framework of the Climate Convention) proposes a platform to inventorise sources of funding for adaptation of whatever kind (loans, grants, subsidies) or scale (national, regional bi- or multilateral funds).
Another platform, **Climate Finance Options**, recently created and managed by the World Bank and UNDP, facilitates research, access to funding (mitigation and adaptation) and bringing donors and recipients together[1].
Below is a summary of the main funds available and the types of project funded.
The list is not exhaustive, and in particular does not include bilateral funds or those of private foundations.

Pilot Program for Climate Resilience

This is a fund managed by the World Bank, which distributes grants and loans for targeted programmes to initiate strategies for strengthening resilience in nine vulnerable countries: Bangladesh, Bolivia, Cambodia, Mozambique, Nepal, Niger, Tajikistan, Yemen, Zambia, the Caribbean, South Pacific. Its budget is one billion dollars. As an example, one of the recent projects approved for funding by the Executive Committee aims to improve flood prevention in Tajikistan through strengthening hydro-meteorological information provision and regional coordination with five neighbouring countries.

Global Environment Facility (GEF) and its specific funds

Of 669 projects related to climate change funded by the GEF, 98 presented between 2001 and 2009 (or nearly one project in six) concerned adaptation. They were financed through the specific funds managed by the GEF: **the Adaptation Trust Fund, the Special Climate Change Trust Fund, and the Least Developed Countries Trust Fund**. More than two thirds of the funds were for projects in Africa.

Of the various funds administered by the GEF, **the Special Climate Change Trust Fund (SCCTF)**, which has been operational since 2001, signed funding agreements averaging 4.5 million dollars per project. All potential projects have to be presented by the designated national focal point (generally the UNDP) and be supported by the national government.

This fund operates according to four specific funding lines:
- Adaptation (projects must fulfil the priorities set out in the national Adaptation Plan);
- Transfer of technology;
- Energy, transport, industry, agriculture, agroforestry, waste management;
- Activities to assist developing countries whose economies are highly dependent on revenue generated by the production, transformation, export or consumption of fossil fuels (or of high energy consuming products) to diversify their economies.

The range of projects funded by the SCCTF is wider than that of the Adaptation Trust Fund under the Kyoto Protocol, since they include both mitigation and adaptation. Although the guideline document on accessing funding indicates that the SCCTF is intended to fund projects of different and varying scales (from community level to national level projects), it appears that few projects of community scale have actually been funded. This is probably because of the obligation to pass through the national focal point (usually the local UNDP representative) to request funding, and the obstacles posed by the drawing up and submission of a comprehensive project proposal. NGOs seem in practice to be excluded from this process. However the programme document, written in 2004, also provides for the setting up of a faster appraisal process for projects requesting less than 250,000 dollars.

One of the most accessible funding streams of the GEF for NGOs is the **Small Grants Programme (SGP)** which is aimed at the strengthening of community environmental actions via assistance grants of up to 50,000 dollars. These are awarded directly to community organisations or to NGO project holders. The SGP particularly supports "*community based*" adaptation interventions.

257 projects[2], with an average budget of 21,000 dollars, have been funded in this stream; however these represent only 1% of the total project portfolio (while energy efficiency and mitigation projects account for 16% of the total awarded, or 60 million US $).

The Adaptation Fund, part of the Kyoto Protocol

The Fund's resources are allocated according to criteria set out in the strategic priorities, policies and modalities of the Adaptation Fund, which were adopted by the Meeting of the Parties in the Kyoto Protocol. These criteria focus particularly on:

- The level of exposure;
- The degree of urgency and the risks of delayed intervention;
- Just and equitable access to the Fund's resources;
- Lessons learned from the conception and implementation of projects and programmes;
- The search for benefits at regional levels wherever possible;
- Maximisation of multifactorial and cross-cutting benefits;
- The capacity for adaptation to unfavourable effects of climatic change.

The subjectivity of these criteria for ranking countries' access to funding (in particular of the first two, which are concerned with evaluating vulnerability) is a thorny problem for the whole category of funding instruments dedicated to adaptation to climate change. Numerous methodologies have been proposed for measuring vulnerability (**the Climate Vulnerability Monitor** of DARA, PPCR measures, etc.) but none of them are completely satisfactory. There are two essential kinds of problem:

- **Choice of scale:** most of the ranking methodologies have been developed at national level, which is not necessarily the most appropriate. This is explained mainly by the availability of data, but it often creates fundamental problems, even though no NGO which responded to the questionnaire, apart from GERES, reported having encountered such a case. For example, India could be classified as a "less vulnerable" country, using these national level evaluations, based on its GDP and its resilience. However some regions and some populations in India are extremely vulnerable. It would be inequitable for them to be unable to benefit from any funding for adaptation, unlike other countries identified as "completely" vulnerable. This issue is what some have referred to as "differentiated vulnerability". An additional criterion then might be that of "national disparity in vulnerability", which itself presumes that regional level data are available.
- **The country's capacity to absorb and invest the funding**: Countries are *de facto* ranked according to which of them wish to receive funding and which are capable of absorbing it (because they are heavily supported by multilateral and bilateral development banks). This explains why, for example, Somalia does not receive adaptation funding although the country is at the top of the list of most vulnerable countries, as the recent occurrence of a food crisis in the Horn of Africa demonstrated.

The (Future) Green Climate Fund

The issue of how funding for adaptation under the Green Climate Fund will be allocated remains undecided while the operationalization of the fund is under discussion [3].

Notes:

[1] http://www.climatefinanceoptions.org/cfo/Funding%20Sources

[2] See some examples on the SGP site: http://sgp.undp.org/

[3] On this subject, read the article by CDKN, "Financing improvements in the governance of climate risk: introducing the "Up for it" index" - *http://cdkn.org/2011/05/financing-improvements-in-the-governance-of-climate-risk-introducing-the-%E2%80%98up-for-it%E2%80%99-index/*

Funding Agencies are Unwilling to Finance the Additional Costs of Adaptation

Note: *there is a contradiction here, whereby nearly three quarters of Southern NGOs report that most of their donors have introduced conditions of eligibility for funding which relate to adaptation questions.*

The low level of explicit attention paid to adaptation questions in NGO projects is partly to do with the small proportion of donors currently financing adaptation projects. In fact only a small number of large donors, such as the European Union, seem to have introduced climate change adaptation into the eligibility criteria in their funding policies. As GRET has shown, this eligibility may take the form, in the invitation to tender, of a demand for an analysis of the vulnerabilities and capacities for adaptation of communities as a precondition, which seems to be a sine qua non for the identification of the project and for obtaining funding. This analysis may sometimes be done by the local partners involved in the future project, using a community method such as *Climate Vulnerability and Capacity Analysis* (CVCA) *or Community Based Risk Screening Tool – Adaptation and Livelihoods* (CRiSTAL), methods developed by NGOs, think tanks or research centres.

A number of NGOs referred to this state of affairs in their responses:
"Adaptation has become a point needing to be justified in project formulation, but does not seem to be a priority criterion at this stage, which makes the difference in terms of project selection. The donors would like to fund projects which support adaptation, but apparently without offering any supplementary resources to do this".
"There is an incentive to take this problem into account in a cross cutting manner, but not yet as a priority for intervention".

In reality the majority of aid donors are kicking this question of adaptation into touch. The position of the French government is instructive in this regard:

- France's climate funding is systematically accounted for as Official Development Assistance (ODA), whereas for the NGOs climate change is an added constraint weighing on a country's development – a constraint for which developing countries, in particular the least developed, are not responsible. The NGOs' opinion is that climate finance should therefore be new and additional to ODA targets (0.7% of GNP by 2015). Although the "climate" share of ODA has grown, the overall PDA envelope remains the same. So an increase in climate funding is taking place to the detriment of other development actions.

- For the French government, funding for adaptation to climate change is funding for development. The government argues that it is impossible to dissociate development from adaptation. This position is the result on the one hand of a methodological question (how to evaluate the incremental cost of adaptation within a development project), but also of a political question (dissociating one from the other would amount to admitting the need for additional funding for climate related activities over and above ODA).

- Adaptation represents only about 20% of the climate funding of France. Therefore, it is a small minority interest compared with the funding of limiting emissions and taking action against deforestation.

This position is confirmed by one of our interviewees: "*Not much funding for adaptation as such is proposed by the development cooperation agencies such as the Agence française de Développement (AFD – French Development Agency). They rather opt for the inclusion of adaptation issues in existing development projects*".

For ISOs in France Adaptation is Becoming Increasingly Strategic

Several NGOs who responded to the questionnaire have already implemented adaptation projects in recent years. Some of these are presented in detail in the second part of this guide.
This finding echoes that of the report of the World Resources Institute (WRI) in 2007[4]: few cases of projects specifically devoted to adaptation were attributed to French NGOs among the 135 projects studied by the WRI in 2007. So it is hardly surprising that most of the methods and toolkits created for analysing vulnerability and adaptation capacity are the products of Anglo-Saxon NGOs (TearFund, Practical Action, CARE, WWF, etc.).

Desire to overcome obstacles

Half of the NGOs who responded to the questionnaire made explicit reference to adaptation in one of their projects in the last four years. This finding, compared with that of the 2000s, does represent nevertheless a major change.
Generally speaking, these projects were carried out in rural areas. This may be explained by the fact that historically this has been the main sector in which NGOs intervene, since they have rarely been active in urban areas. The approach of these projects consists essentially in reducing underlying vulnerability in their zones of intervention. They deal with agriculture and food security, access to essential services, and with management of natural resources and the environment. To a lesser extent they also concern themselves with decentralisation and land improvement, as well as with economic activities and micro-credit.
Today it is noticeable that almost all the NGOs questioned indicated that they wished to implement adaptation projects in the coming year, overcoming the obstacles pointed out earlier. All of them also rejected the view that it is better not to intervene at all with an adaptation strategy than to risk "**maladaptation**" by intervening. For southern NGOs, the position on this question is more nuanced, and a third of those questioned agree with this view.

High expectations of funding from donor agencies

In addition to this, two thirds of NGOs say that they follow **international negotiations** dealing with adaptation, and half of them say that they know about the mechanisms for allocating funds and the governance regime of the Adaptation Fund. The international community therefore has high expectations of adaptation when it comes to ensuring that the commitments entered into by the industrialised countries at Cancun are honoured (the structure, the mode of governance and the sources of funding of the Green Fund are supposed to lead to 100 billion dollars a year being mobilised per year by 2020).

A need to strengthen the capacities of international solidarity actors

Finally, two thirds of the NGOs would like to receive training on adaptation and on vulnerability analysis approaches in the coming months. For these NGOs this is a question of acquiring ownership of tools for analysing vulnerabilities and adaptation capacities, but also of getting to know the available data sources and identifying possible sources of funding. Apart from seminars and conferences on the exchange of knowledge about adaptation, some "adaptation schools" are offering training modules intended for NGOs. One particular example is the Center for Sustainable Development, which offers a summer e-course dealing with identification of local community vulnerabilities and of risks and hazards, with researching adapted solutions and with implementing monitoring and evaluation processes. However, it seems that training is more often undertaken internally within each NGO, once it gets to grips with the subject. This explains in part the proliferation of methods for analysing vulnerability, whose content varies very little from one methodology to another!

4 WRI (World Resources Institute) REPORT – *Weathering the Storm, Options for framing adaptation and development*, H. McGray, A. Hammill, R. Bradley et al., 2007, 57 pages.

Adaptation and Development: Two Closely Associated Processes

Adaptation/Development: Closely Associated Practicess

The WRI's 2007 report [5] concluded that of the 135 projects selected for case study which bore the adaptation "trademark", only one third consisted of ad hoc adaptation projects. In reality almost half of these projects achieved climate change adaptation objectives "by chance" while aiming for development objectives (capacity building, education, improvement in living conditions etc.). The remaining projects aimed to strengthen the resistance to climate change of ongoing development projects ("*climate proofing*"). Very little has changed in the implementation of adaptation projects by French NGOs since this study, except that "*climate proofing*" of projects already under way is less common (although still current), because the impacts of present and future climate change are more fully taken into account upstream (in the pre-project phase).

The findings of our survey are therefore in line with the conclusions reached in 2007.

Responses to the questionnaire indicate that there are few "cut and dried" cases of adaptation, such as projects dealing with glaciers in mountain regions or with the small-island States. In the majority of cases it is impossible to dissociate development from adaptation.

In this regard many NGOs consider that **proposing development projects "as usual" amounts to an adaptation strategy in itself**. Most NGOs responded that in fact, they "have always done adaptation" because they aim to reduce the general physical and socio-economic vulnerabilities of the populations (in terms of poverty, access to natural resources, and management of natural risks).

As a result, there is no clear cut opinion on the part of the members of the Commission concerning the boundary between development and adaptation. According to the questionnaire responses:
- Just under two thirds of the respondents conceive of adaptation as a development programme which includes the management of natural risks.
- More than a third consider that adaptation has to do with the transition of societies towards a mode of development which integrates environmental risks and constraints and the finite nature of resources.

For the southern NGOs, in the same way, a consensus emerges which conceives of adaptation as a model of development adapted to new climatic conditions/having integrated the issue of natural risks (3/4 of responses).
For the Réseau Climat et Développement, climate change is just one more development constraint.

In global terms we see that the overlap between the ideas of development and of adaptation constitutes a difficulty in determining what really comes under the heading of adaptation to climate change.

The Need for a Paradigm Shift

In general, the dilemma of development and/or adaptation is an unintended consequence of the international negotiations on funding for adaptation. There are three positions, often complementary, which can be found represented among the NGOs of the Climate and Development Commission. The idea of adaptation is often perceived as a "black box", and these NGOs continue to seek funds from ODA, whatever outcome is expected in terms of adaptation, resilience or reduction of vulnerability from the projects they are implementing.

5 WRI, *ibid*.

A number of NGOs then take up a **position of principle and of advocacy**, because "*not separating adaptation and development would be to encourage the non-additionality of funding*". At the same time they are aware of the very subtle nature of this distinction (and of the technical impossibility of applying it in projects!). Separating adaptation from development then becomes a way of increasing potential resources. The 2007 WRI report noted that: "*policy makers must reconcile the need for new and additional funding with the recognition that traditionally funded development efforts are an important part of adaptation*".

Finally, the third position (which is however not contradictory) consists in considering **adaptation as a conditionality of development** (adaptation is the means to arrive at a development which is resilient and low carbon) in order to fund development pathways which are low carbon and resilient. Here it is a matter of deploying extra means of identifying vulnerabilities and the adaptability of societies in their development trajectories. This analysis calls for funding from supplementary budget lines in public development aid.

But unfortunately, as a general rule, analyses of vulnerability are not carried out, because as GRET shows: "*The application of these methods takes place at the very first stages of project design (at the level of the concept note). So it is not paid for by the donors, although it is a precondition. The funds and the time allocated to this analysis are therefore restricted, which amounts to a constraint on the depth of the analysis*".
Thus as long as the donors do not include the additional costs of an adaptation project, the preliminary analysis will remain superficial.

From this point of view, adaptation is a process rather than an end in itself: "*Adapting oneself means trying, not necessarily succeeding*". It is part of a strategy of adaptation to be permanently ready to propose readjustments or new strategies.

The Groupe de Recherche et de Réalisations pour le Développement rural (GRDR) finally notes that: "*Above all it is necessary to join together development aid (to the South) and reduction (in the North). Adaptation must not be seen as a passing phase of policy, needed to counterbalance the effects of greenhouse gases which have already been emitted. The real challenge is to lower emissions in the North, and to promote resilient and durable development which is energy efficient and low carbon, in the South. International solidarity organisations must also take up positions in favour of the changes which are needed in the policies of the North (as an issue of consistency)".*

This reminds us that it is important not to steer around the idea of reduction while advocating adaptation.

Through these different ways of seeing and conceiving of projects, a new way of thinking about and implementing development begins to take shape. What is needed now is clarity about the links between adaptation and development and the specific features of each.

The Role of NGOs in the Process

The role of the NGOs is one of accompaniment, and as catalysts of the dynamics of adaptation which are already on-going. It is not a matter of being obliged to find new solutions, but of "*entering into synergy with local populations*" and identifying solutions which already exist locally. The aim is to make modes of development more "flexible".
By virtue of their knowledge of the field and the relative flexibility of their development activities (which are generally not components of very long drawn-out processes), NGOs can encourage the emergence of a flexible approach to development on different spatial and temporal levels.

This accompaniment (North-South or South-South) can take place at several different levels and serve various objectives, which were mentioned by most of the NGOs surveyed.

Reducing the risk exposure of the most vulnerable: women, children, the elderly and the disabled

Women are the section of human communities most affected by and most vulnerable to climate change. Studies show that they are disproportionately more vulnerable than men, particularly because they are the ones who bear the heaviest burden of the activities most affected by negative climate factors (such as collecting wood and water and providing food) [6]. They are also more affected by natural disasters: one study shows that the risk of dying in natural disasters is 14 times higher for women and children than for men [7]. At the same time their capacities for adaptation and their resilience are reduced because of more limited access to health, professional skills, infrastructure and information.

However, as has been emphasised by Oxfam and the Overseas Development Institute (ODI) [8], this issue of differentiation of vulnerability by gender has been largely ignored up to now in North-South funding. National adaptation plans take this aspect of vulnerability into account but without translating it into action: the national plans of Bangladesh and Ethiopia do not propose differentiated measures for men and women even when these appear to be appropriate. In addition, ministers responsible for "Gender" are rarely involved in climate policies and strategies.

Emergency aid and development NGOs are often very involved in the gender issue and have the legitimacy to intervene in these questions of differentiated vulnerability between men and women in the face of climate change impacts (whether this be from the angle of advocacy and awareness raising or through practical activities in the field). However only 1/3 of the respondents reported having as an objective in their future adaptation projects "reduction of vulnerability among those most exposed to risk", which is in fact one of the least cited objectives.

Promoting an integrated adaptation approach

Analysis of vulnerabilities, and implementation of the resulting adaptation strategies, must form part of an approach which is integrated in several ways: in time, in space and across sectors of intervention. The box below outlines an example from Senegal showing these different dimensions.

Time:

All the NGOs questioned stated that adaptation involves **two time frames**: one short term (so- called *climate-proof* development) and the other longer term (societal change).

Almost all the respondents further stated that adaptation is first and foremost aimed at reducing vulnerability and increasing resilience in the face of climatic changes over the long term (changes in rainfall regime, increasing frequency of extreme climatic events etc.), with management of natural disasters (storms, droughts, floods etc.) as a secondary objective.

This shows that the question of time frames is an essential one in implementing adaptation strategies.

Space:

All the NGOs considered that **analysis of vulnerabilities and adaptation capacities must be conducted on different spatial levels**, at the same time. The national, regional, local and domestic (household) levels are interlocking, and appropriate levels for intervention need to be defined depending on the characteristics of the projects to be implemented.

Although it is an important lever for action, the community approach will be insufficient if it does not integrate national and regional actors and adaptation policies. Furthermore, three quarters of the NGOs who responded believed that all adaptation projects should form part of national prio-

6 *Gender considerations in Climate Change: Priorities for Adaptation*, H. Reid et al., Climate Change Group, IIED, Oct 2009.

7 Peterson, K., (2007), *Reaching out to women when disaster strikes, Soroptimist White Paper*.

8 Source: report by Alix Mazounie (RAC-France) of the fringe event "Ensuring national leadership of international climate finance", organised by Oxfam and ODI in Bonn, 13 June 2011, as a fringe meeting during the negotiations of the CNUCC.

rities in terms of development and of action on climate change. However only a quarter of them make use of National Adaptation Plans for Action established in LDCs (49 plans) to contextualise their adaptation projects! This paradox is probably a result of the numerous failings which have been acknowledged in the national adaptation plans. The NGOs which have experience of them make the following criticisms:

- They have done little to raise awareness of climate change among national actors;
- Their level of expertise is modest;
- They have analysed vulnerabilities at an inappropriate (national) level;
- They have not involved local people in the design of the programmes;
- Their approach is sectoral;
- They are not applicable at field level.

However it is worth remembering that **integration of the actions set out in the action programmes is essential**, both to ensure that different spatial levels are well articulated and also to benefit from funding opportunities (in particular under the Adaption Fund).
An integrated vision of adaptation therefore has to be achieved by way of a territorial approach which goes beyond a simple administrative mapping and takes into account the whole set of human and natural systems making up a territory (a watershed, a valley, a town and its interaction with the rural area, etc.), but also those systems which affect it (positively or negatively) from outside. To be complete this approach also has to take into account cross-border dynamics (see box 3). The involvement at different levels of the country actors enables this challenge to be met at least in part.

Sectors of intervention:

Three quarters of the NGOs who responded stated that **the question of adaptation cannot be answered via a sectoral approach**. A whole chain of potential impacts of several climate variables needs to be considered, which can affect many different sectors; a multi-sectoral adaptation strategy will enhance the effectiveness of results, but also improve the efficiency of the means invested in its implementation.

This dimension is certainly the most difficult of all to achieve in practice, because it presupposes fundamental changes: not only within NGOs used to working in a sectoral way, but also within local governments and structures, and also national governments and institutions in the vulnerable countries.

Mobilising different skills to integrate adaptation into local strategies

On the one hand, NGOs can intervene in building capacity for evaluating vulnerabilities and for being able to transform adaptation capacities into adaptation strategies. This requires methodological support, training, and lesson learning from projects to be made available for local communities, local governments or local civil society in order to replicate best practice [9]. Some bilateral aid agencies encourage this kind of skill transfer and strengthening. For example the Canadian International Development Research Centre (IDRC) has launched a programme to encourage the efforts of African researchers to identify better adaptations to climate change; this enabled ENDA Maghreb, for example, to carry out training on adaptation for Moroccan NGOs.

Finally, it is important for NGOs not to fall prey to excessive determinism about the physical vulnerabilities of a country or a population. Political conditions and governance are the crucial factors in adaptability.

9 UNITAR offers a Training Programme on climate change for decision makers in developing countries and LDCs. In particular it supported the finalisation of Adaptation Plans for Action through providing technical and methodological back-up.

In addition to these approaches (and although none of the NGOs surveyed mentioned this aspect in its adaptation projects) implementing **insurance mechanisms** against climatic risks, when allied to integrated risk management, has the potential to be an efficient strategy for strengthening resilience without the need for infrastructure. However in practice, and especially in the case of agriculture, it "*emerges that this mechanism arouses a great deal of hope, whereas the complexity of implementing it is a major brake on its establishment. Agricultural insurance thus has to face two major issues: achieving economic equilibrium (with or without subsidies), while providing a response appropriate to the need*"[10]. One of the main difficulties is to do with the technical calibration of the indices which trigger payments of indemnities.

On the other hand, for NGOs whose expertise is very "technical" (risk management, water, energy etc.), intervention in the sphere of **infrastructure** in country, within and in accordance with a wider programme fitting into national and regional adaptation plans, may be the best option.

Strengthening adaptation capacities through working on governance

Finally, as pointed out by 4D, while there is a key role for scientific knowledge in the face of uncertainty, care needs to be taken (and this is essential for NGOs) to consider properly the democratic challenge posed by adaptation. This demands the setting up of processes for joint project building with local actors and for making the societal choices (long term choices from among the possible options) which underpin them. This requires taking into account customary expertise in all its diversity, as a complement to scientific expertise.

Through their advocacy programmes NGOs, especially civil society organisations in vulnerable countries, must also champion the freedom of expression and the strengthening of opposition forces. This balance is an indispensable ingredient in the response to uncertainty.

BOX 2

> Territorial approaches to climate change by international organisations

It is interesting to note that most international development actors (World Bank, OECD, UNDP etc) increasingly position themselves within this **territorial approach to climate change**. For UNDP, for example, the objective is to assist regional and local governments in developing countries in order to:

- Develop strategies and action plans enabling the robustness of development plans to be evaluated in relation to future climatic conditions;
- Strengthen the capacities of local governments, to enable them to integrate climate change into their territorial planning; for example, this is the purpose of the TACC (Territorial Approach to Climate Change) initiative;
- Identify adaptation and ("no regrets" or low cost) mitigation measures which can be long lasting and can contribute to reducing poverty;
- Improve the capacities of governments to identify and put in place appropriate regulatory measures and to benefit from international sources of funding to implement these.

▶ **Reading: *UNDP, Mapping Climate Change Vulnerability and Impact Scenarios, A guidebook for Sub-National Planners*, November 2010, UNDP.**

10 Anne Chetaille et al., Gestion des risques agricoles par les petits producteurs – Focus sur l'assurance récolte indicielle et le warrantage, May 2011, Documents de travail de l'Agence française de développement, 86 pages.

BOX 3

> Illustration of a multi-scale and multi-sectorial approach; the sylvo-pastoral zone of Senegal

The cattle herd of the sylvo-pastoral zone of the **Ferlo in Senegal**, with 570,000 individuals, represents 22 to 30% of the Senegalese livestock herd (belonging to barely 2.5% of the national population!). Therefore, livestock concentrations here are high, and pressure on natural resources is already significant: there are presently about 8.5 ha per head of cattle (compared with 24 ha in 1975); whereas experimental research suggests that the maximum stocking rate should be 1 head of cattle per 10 hectares. Soil degradation due to water stress and serious loss of vegetal cover is already reported. Increasing frequency of drought and rising temperatures are bound to aggravate these problems, which are due not only to the climate but also to human pressure and poor natural resource management practices, with impacts directly on forage resources and water for livestock. This is likely to have repercussions for the meat and milk productivity of the livestock, and in the longer term for food supplies to the large urban centres of Senegal. In addition, conflicts over resource use will have implications for the economy and for social relations throughout the sylvo-pastoral zone.

Until now transhumance has provided a traditional mode of response to such problems, and has been a viable adaptation strategy in a fragile environment. However, the precarious state of fodder resources, the depletion of the water table which has already been observed, and the reduction in available pasture land (because of the rapid and anarchic spread of irrigated agricultural land where yields are often very low) and also the lack of management by public authorities, are all aggravating the situation still further. In addition, clashes are frequent, whether between different actors in a given zone or between transhumant pastoralists and sedentary populations, despite the measures taken by the authorities. What is more, pastoral mobility within the region is added to by the transhumant movement of animals from neighbouring countries. The overstocking, which results increases the risks of conflict between Senegalese herders and foreign transhumants. Although there are laws governing the entry and movement of animals on Senegalese territory, these are poorly applied, mostly because of lack of knowledge of the texts themselves or a shortage of motivated government workers.

- Solutions exist and have indeed already been set out in the NAPA: replanting fodder crops, revitalising the water supply system, diversifying activities through reforestation, setting up insurance or micro-credit mechanisms for herders, etc.

- But all these measures, like the lack of rules governing pastoralism and the import of animals from neighbouring countries (Senegal imports 65% of its needs in terms of cattle and 50% for sheep), suffer from a lack of political will and a failure on the part of national governments to grasp the current problems and their multi-sectoral nature.

- Strengthening governance is therefore vital to enable decisions to be taken to ensure the flexibility of society in the face of global changes.

Managing Change Within NGOs

In order to rise to these challenges and in particular to ensure that there is a cross cutting and systematic approach to adaptation, several of the NGOs who responded have set up internal working processes (GRET, Médecins du Monde, Agronomes et vétérinaires sans frontiers (AVSF), GERES etc.). Apart from the search for a common terminology, these have two objectives:

- To get to know all the approaches which are available internally to research issues of vulnerability to climate change and also other vulnerabilities;
- To identify the relevant skills (already acquired or needing to be acquired) for confronting the challenge of adaptation. What skills should be called upon in the case of a project or of research on adaptation? Over and above the dimension of "dialogue between the actors involved, local governance", what are the technical skills required? Do these technical skills (such as modelling, risk mapping etc.) need to be brought together internally or by collaborating with other actors (through alliances)?

Acting in Uncertainty: A Challenge for ISOs

How to Identify the Main Trends in Local Impacts of Global Climate Change: Representing Smaller Scale Changes Using Global Models

Uncertainty is due essentially to three types of factors [11]:

- **Uncertainty about future greenhouse gas emissions**: This source of uncertainty is without doubt the best known by project managers and decision makers. It results in uncertainties regarding a number of key hypotheses about relationships between future populations, socio-economic development and technical advances which may influence greenhouse gas emissions.

- **Uncertainties due to modelling**: models may predict different climate modifications using the same parameters; these differences between models are due to variations in mathematical representations of earth systems.

- **Internal variability of the climatic system**: this uncertainty has to do with natural climate fluctuations which are independent of the radiation forcing of the earth system. These fluctuations are significant for project managers because they may have the effect of reversing long term climatic trends for periods of up to ten years.

There are three major categories of climatic event:
- **Category 1:** recurrent one-off events, such as storms, droughts and extreme precipitation episodes.
- **Category 2:** "continuous" events, such as for example rise in average temperatures or decline in mean annual rainfall over several years or decades.
- **Category 3:** non-recurrent one-off events, for example a modification of climatic regime associated with changes in ocean currents. Palaeo-climatology offers several examples of occurrences of rapid change of this type [12].

Scenarios established by the IPCC are essentially intended to describe the probable effects of a rise in greenhouse gas emissions on category 3 events. Formulating scenarios involves recognising that there are doubts about thresholds and so-called "tipping points". These exercises can conclude only that there will be more, and more severe, category 1 events, but without being able to predict exactly their frequency or their spatial distribution (especially in Africa [13]). Category 3 events are by their nature not predictable.

Thus it is difficult at present to represent the local impacts of a change in global climate, and therefore the "physical" vulnerabilities, current and future, of countries facing climate change [14], despite climate models whose resolution is improving from year to year [15].

11 UNDP, Formulating Climate Change Scenarios to Inform Climate-Resilient Development Strategies, April 2011.

12 *Vulnerability, risk and adaptation: a conceptual framework*, Nick Brooks, Tyndall Centre for Climate Change Research, Working Paper 38, Nov 2003.

13 See the GIEC 2007 report "Regional Climate Projections" p.871.

14 These "cascading" uncertainties are well presented in the World Resources Report 2010-2011 (UNDP, UNEP, World Bank, WRI), *Decision Making in a Changing Climate, Adaptation Challenges and Choices*, Oct 2011.

15 Some research programmes are now able to achieve a resolution of 8 km (the transalpine AdaptAlp programme for example).

However, uncertainty can be demotivating. Individuals need clear signals in order to take action, and this applies particularly to project holders. Faced with this state of affairs, there are two distinct positions possible:

- One approach insists on the need to rely on climatic data to establish adaptation strategies. Sound technical skills have to be called upon to model climate change at a local level. This is the position adopted by many Northern countries.
- The other approach is to say that climate scenarios are only hypotheses and that local impacts are still largely unknown. Therefore it is better to rely on the capacities of societies in the South to absorb changes (including, but not only, climate change impacts), taking into account the major trends identified by the IPCC.

As half of those surveyed pointed out, lack of the kind of scientific knowledge about local impacts of climate change which would be needed to evaluate physical vulnerability on a territorial basis, is a factor which prevents some project holders from implementing adaptation projects. Furthermore, 5 out of 6 of those surveyed stated that adaptation requires a forecast of the impacts of climate change at regional and local levels, and that developing countries do not have the means to achieve this. These organisations, then, offer a somewhat pessimistic view of the possibility of ownership of the adaptation agenda by local institutions in Southern countries.

It is curious to note that while three quarters of those organisations who responded said that they did not feel sufficiently informed about adaptation issues and practices, we can see that nearly half of them have only slight knowledge of **forums for exchange and for lesson learning from experiences of adaptation**, despite the fact that there are large numbers of these. It is even rarer for them to publish the results of their experiences in one of these forums (only 2 NGOs responded that they had done this). On the other hand, the great majority of Southern NGOs who responded to the questionnaire knew of the existence of these forums, in particular AfricaAdapt (12 out of 15), and Enda Communities (11 out of 15). Two thirds of the Southern NGOs had published their experiences at least once.

The second part of this guide attempts in part to respond to this distortion, by presenting a number of tools, sources of information and methods which are available to project holders.

Some ways to consider for overcoming these difficulties

Objective analysis of vulnerabilities and capacities for adaptation

3 out of 4 of those surveyed agreed that implementation of adaptation strategies is made more difficult by the complexity of analysing vulnerabilities and adaptation capacities. This is also confirmed by the finding that 7 out of 12 NGOs would like to receive training in adaptation and in analysis of vulnerability in the coming year.

However, only a small minority (2/12) of NGOs who responded had already made use of methodological tools for analysing vulnerabilities and adaptation capacities. The subject is a fairly new one for most of the NGOs surveyed, so it was not surprising to discover that there is a gap between theory and practice. Lack of knowledge of tools and of existing sources of information is one sign of this gap.

Some NGOs are currently working with their own tool kits. This creates a multiplicity of methodologies and tools arranged according to each organisation's preference, which is bound to lead to duplication and redundancy, although it also undoubtedly enables ownership of the issue to be achieved within the organisations as a result of the collective efforts they have made to develop the methods.

These tools have a number of weaknesses. In the first place "*these methods need to evolve so that the tools developed may better elicit the local problems linked to climate change*"- in order, in short, to reflect better the local territorial realities. Secondly, these tools, which often depend on the use of a community based approach, carry the risk of **making climate change the scapegoat for all the difficulties of a country**. In fact local environmental problems are just as often the result of bad natural resource management. Finally, the NGO Care mentioned a limitation of its community based approach, the CVCA, but one which undoubtedly applies to any participatory process: **the risk of creating inflated expectations on the part of communities**.

Therefore, it is important to concentrate on improving what is already there, which is a fairly full range (the website of the Nairobi Working Group lists more than a hundred methodological "toolkits" for evaluating vulnerability and for assisting in decision making), rather than adding further tools to the list. Section 2 of this report presents a number of these tools.

Integrating climate data progressively as climate science develops

5 out of 6 of those NGOs surveyed considered that analysis must include exact scientific knowledge on the evolution of climate, and that a range of climatic scenarios should be formulated.

However, science is not currently able to offer reliable climate projections on a local scale, and is still less able to anticipate the impacts of future climate changes. This is why ISOs need to be flexible in managing their projects and to integrate more refined climatic data as climate science develops, adjusting adaptation strategies as they progress.

This continuous process of improvement of the bases of projects can be done through the development of indicators for use in the monitoring and evaluation (*ante*, mid- term, *ex-post*) of adaptation strategies already put into practice. These elements are already part of many territorially based approaches linked to environment and climate (Agenda 21, Local Climate and Energy Plans), on which it would be pertinent to draw.

Having confidence in local knowledge

Several NGOs insisted on the fact that the process of adaptation should be the result of a *bottom-up* approach. During the launch workshop of the Climate and Development Commission of Coordination SUD's reflection on adaptation, many examples were given of adaptation strategies which exist locally in vulnerable regions and which could be simply reactivated, enlarged and reproduced. **However care should be taken not to over-embellish the effectiveness of these local adaptation strategies**.

Most methodologies for the analysis of vulnerabilities and adaptation capacities favour a participatory approach, although this has its own drawbacks, such as the creation of inflated expectations among local people. An ethnological approach to adaptation involves understanding how local people have adapted to climatic variability over millennia. Some strategies used in the past could prove useful today or in the future.

The participatory approach is particularly valuable in accessing the most vulnerable population groups, such as women, to enable them to get to grips with a subject where their actions will have leverage for the community as a whole. It is also vital to work with the elders on their perception of changes over the long term.

Opting for strategies incorporating greater flexibility, to allowfor continuous improvement

As emphasised by IRAM, "*We must take into account the fact that we do not know what to do*". Thus it is more a matter of establishing strategies which enable the robustness of natural and human systems to be assured, in order for them to be able to confront a variety of possible futures.

Several different options enable coordination amongst project holders (particularly governments and local administrations) to take decisions to reduce vulnerabilities. Stéphane Hallegatte of the Centre International de Recherche pour l'Environnement et le Développement (Cired) gives details of several of these [16]:

- **"No regret strategies":** these are actions whose benefits will always be more than the costs (real or potential) they generate. Preventing building in flood prone areas is an example of a "no regret" strategy.
- ***"Reversible strategies":*** the aim of this type of strategy is to limit costs as much as possible in case of errors in the predictions for the future state of the climate. Setting up warning systems and evacuation schemes is completely reversible: if the local impacts of climate change turn out to be different from what had been forecast, this will have little effect.
- ***"Safety margin strategies":*** here it is a matter of calibrating infrastructure at a high level so that it will be adaptable to whatever change in the climate ensues (for example a drainage system capable of coping with steep rises in precipitation, or dykes higher than any scenario for sea level rise). The initial cost of construction is lower than that of reconstruction or of adjusting the infrastructure if it proves inadequate, so that this strategy makes decisions more robust.
- ***"Soft strategies":*** technical solutions are not sufficient for adaptation to climate change. Strengthening governance so as to be able to plan and put into effect adaptation plans is an adaptation strategy in itself. Insurance systems are also an example of this kind of "soft" strategy.
- ***"Strategies that reduce decision-making time horizons":*** reducing the life expectancy of investments, although socially difficult to accept, and debatable from an environmental point of view, may also constitute an adaptation strategy. This could be the case for infrastructure designed to reduce the damage caused by natural catastrophes.

These strategies are equally valid for NGOs, in several ways. In fact the idea of flexibility is linked to innovation and the capacity to readjust systems depending on short term variations. This is an opportunity for ISOs, each in its own domain, to the extent that the timing of their activities can be planned over shorter time frames than is possible for development projects with their unwieldy planning requirements for 5 to 10 years ahead.

This kind of flexibility means that sound project evaluation is indispensable, despite the difficulties of measuring resilience or improvement in adaptation capacities [17]. Médecins du Monde has achieved this to some extent for its DIPECHO programme [18] of risk reduction in Madagascar (see section 2 case study), through evaluating changes in behaviour post-project following the passage of a cyclone. Control zones enable a relatively objective basis of comparison to be established.

16 S.Hallegatte in "*Strategies to adapt to uncertain climate change*", Global Environment change 19,2009.

17 Simon Anderson, *Assessing the effectiveness of climate adaptation*, IIED, Lessons from adaptation in practice, Oct 2011.

18 The DIPECHO programme is the main disaster risk reduction programme of the European Commission. It targets highly vulnerable communities living in some of the most disaster-prone regions of the world, according to a 'community-based approach'.

Strengthening governance by involving local actors

By insisting on the need to know exactly what will be the local impacts of climate change, NGOs are tending to adopt an excessively deterministic approach to the physical vulnerability of a particular territory. The political conditions of governance should be considered in the first place when assessing adaptation capacities. It is here that the cross cutting and multidimensional approach described earlier has its meaning.

Apart from local populations, local actors (institutions, administrations, local NGOs, businesses) must be involved in the diagnosis of vulnerabilities and in the operationalization of adaptation programmes.

BOX 4

> Modes of decision making in adaptation to climate change (WRI)

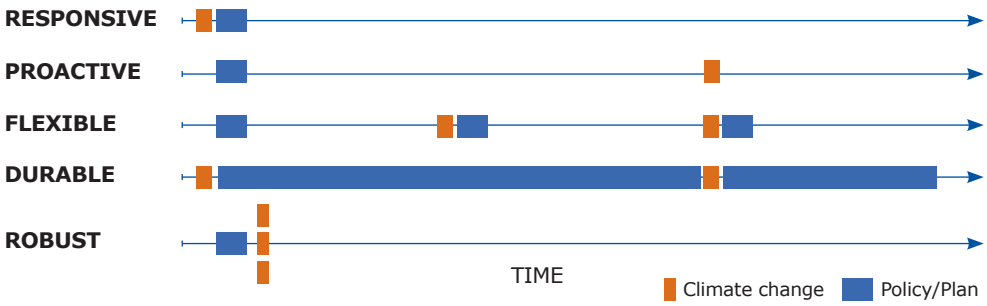


Figure 1: The 5 characteristics of an effective decision making process in facing climate change.
Source: World Resources Report 2010-2011

The World Resources Report 2010-2011[1] summarises in a very pedagogical schema the possible processes of decision making in the face of climate change; each strategy described above corresponds to some degree to one of these characteristics.

A "reactive" strategy will correspond to the implementation of plans or projects after a climate extreme has occurred: this is a process of spontaneous adjustment. Continuous improvement of these adjustments can be considered an adaptation strategy.

A "proactive" decision aims to prepare in advance of a change in climate and of its impacts. Strategies known as "no regrets" are the result of this kind of proactive decision making.

A "flexible" decision process enables plans and policies to be revised while being implemented, in accordance with current changes in climate, taking account of lessons learned from previous experience, new scientific data emerging, or new local conditions (reversible or time-horizon reducing strategies).

Strategies known as "soft" are part of what the WRI calls "durable" decision making. Indeed capacity building will incontestably improve adaptability in the longer term.

Finally decision making which aims at robustness aims to establish policies or projects which are capable of coping with a wide range of possible impacts of climate change, in view of the uncertainty of the timing, as well as the extent and the nature of the local impacts of climate change. Strategies designed to widen safety margins are the result of such decision making.

Notes:

[1] World *Resources* Report 2010-2011 (UNDP, UNEP, World Bank, WRI) Decision making in a changing climate, Adaptation challenges and choices, Oct 2011 p.33-34.

PART 2

Toolkits and Best Practice

Making Good Use of Tools and Methods

As discussed in the first part of this guide, there are numerous tools and methods for analysing vulnerabilities and adaptation capacities. However, they are still little known by the French ISOs we surveyed. Most said they were ill informed about the issues and practices of adaptation. The idea should be to exploit and improve on what already exists – which is quite extensive – rather than adding more new methods to the list of tools available. There is also the question of how to relate all these instruments to each other: methodologies/analysis frameworks, sources of information and data, tools for sharing knowledge and experiences. This best practice guide attempts to respond at least in part to this agenda. Far from attempting to be exhaustive, it aims to present a synthesis of tools and methods which can be considered to be the most pertinent operationally. This guide also presents four case studies covering experiences of implementation by NGOs, and the tools and methods used for the analysis of vulnerabilities and adaptation capacities and for aiding decision-making.

Box 5 below offers a selection of the most pertinent available sources of information, from among a multitude of existing portals [19]. They cover not only forums for exchanges between NGOs but also scientific and legal information.

For more conceptual information the reader can refer to documents such as the "*Conceptual Framework on reducing vulnerability* [20]" by Practical Action or the very dense manual of methods of evaluation of the impacts of climate change by the United Nations Environment Programme (UNEP) [21]. The guide compiled by the Climate Knowledge Development Network (CDKN), ECOFYS and the Institute of Development Studies (IDS) [22] "*Guiding climate compatible development – User-oriented analysis of planning tools and methodologies*" gives a more complete list of these tools. They have been produced by NGOs, donors and communities, and some of them are presented here. The aim of our dynamic guide, although it is not an exhaustive survey, is to enable the tools to be selected and classified according to different criteria (focus on adaptation or mitigation, the project cycle phase concerned, the type of tool sought etc.). For each tool it gives details of the training needs, the cost and time needed to use it, and the languages in which it is available. Finally, in chapter 4 of the guidebook "*Designing Climate Change Adaptation Initiatives*" by UNDP [23] (in English), there is a list of links to other multi-sectoral or sectoral tools, especially in the field of agriculture.

19 The article "Seeking a cure for Portal Proliferation Syndrome" by Geoff Barnard of CDKN illustrates with humour this tendency for platforms and forums on climate change to proliferate.

20 http:// practicalaction.org/conceptual-framework-for-reducing-vulnerability-1

21 Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies

22 www.climateplanning.org

23 UNDP, *Designing Climate Change Adaptation Initiatives, A UNDP Toolkit for practitioners*, 2010.

The case studies presented in this chapter deal with good practice in terms of partnerships with local institutions and research institutes (in particular in order to facilitate the acquisition of data essential for assessment), the participatory dimension (both for capturing local knowledge and for awareness raising and involvement of local people), differentiation of vulnerabilities (women, disabled people and elders), innovative approaches to promote (Geographical Information Systems (GIS) and geomatics), taking ecosystems into account, integration of the dimension of low carbon/mitigation in the establishment of action programmes etc. Each of these cases is subjected to an evaluation of the methodology used to analyse vulnerabilities and adaptation capacities, according to common criteria set out in the "**Keys to Understanding**".

This introduction to tools and methods for integrating climate change into development projects would not be complete without a warning about "all-powerful" tools, toolkits, guidelines, frameworks or other methodological supports. Although useful, these frameworks must be viewed and used with caution.

In the first place, each has to be adapted to local circumstances and sufficient time must be allowed to re-model the tool to suit the area under study: it is the tool which must be adapted to the community being studied, and not the reverse. Furthermore, no tool is complete on its own, and the use in combination of several "bits" of these tools is advisable.

Next, these tools, often involving a community based approach, carry the risk of making climate change the scapegoat for all the difficulties in a particular area. But the vulnerabilities experienced by communities are also the result of other exogenous factors. Researching scientific data to complement both local perceptions and the expert appraisal of the project holders is a guarantee of good understanding of local issues in climate change.

Finally, the participatory nature of many of the methods presented here may bring with it the risk of creating inflated expectations in the communities in question. One good practice, for example, would consist of analysing in a holistic manner the vulnerabilities of a community in order to come up with appropriate adaptation strategies. However, an NGO will find it difficult to deliver an integrated approach without going outside its field of activity, unless partnerships are established locally with other specialists. There has to be a balance struck between what is debated in participatory workshops and the capacities of the NGO to respond to the priorities established by the community [24].

24 Report of the 5th Community Based Adaptation to Climate Change Conference, organised by the International Institute of Sustainable Development, IISD, 28-31 March 2011.

BOX 5

> Some sources of information on climate change and adaptation

Scientific data:

- **IPCC website** (http://www.ipcc.ch/): The IPCC reports remain one of the major sources of information on the effects of climate change. New socio-economic scenarios, from which emission profiles will be drawn, are currently under study.

- **Ci:grasp** (http://cigrasp.pik-potsdam.de/): This is a portal of PIK-Potsdam and GTZ, funded by the German Environment Ministry. A major effort has been made to compile, characterise and map vulnerabilities and potential impacts of climate change at global level and in certain countries. The focus is particularly on the effects of sea level rise. For each type of "climatic stimuli" a chain of potential impacts is presented. It is also possible to compare two climate scenarios or models, and also two different projection periods. Finally this portal contains information on several on-going adaptation projects funded by German cooperation and other donors. This portal can assist in carrying out a pre-diagnosis for an adaptation project. However this information is based on climatic scenarios which are hypothetical creations. They have to be interpreted and used with caution.

- A number of cartographical tools are equally valuable resources, such as the regional cartographical portal of ICIMOD (International Centre for Integrated Mountain Development): http://geoportal.icimod.org/DataViewer/

- **UNDP Climate profiles** (http://country-profiles.geog.ox.ac.uk/): This site brings together, for 61 countries, a synthetic report on the climate profile of the country and climatic data (observed and projected) which were used in the preparation of the report. This is a good first view of the climate issues for each country. The reports date from 2008.

- **FAO / Climpag** (http://www.fao.org/nr/climpag/data): A number of useful resources (climatic data, maps, interpolation of agro-climatic data, etc.) are provided to aid in the study of vulnerabilities. FAOClim 2.0 software is also available. It contains agro-climatic data from almost 32,000 stations across the world. The database includes both long term mean data (1961-1990) and series of data on precipitation and temperature, observed or interpolated. This enables climatic conditions to be estimated, even when observation stations are far from the territory under study. The user can select data by geographical area, time period or parameter to be studied, and can export the information in the form of graphics and maps.

- **Country energy profiles** (http://www.reegle.info/countries): This site presents energy profiles by country. It provides tools for integrating adaptation and mitigation. The statistics cover energy consumption, emissions and the main actors in energy and development for each country.

Adaptation practices and forums for exchange of knowledge

Global:

- **WeAdapt** (www.weadapt.org/): This is a collaborative platform on adaptation. Case studies, presentations of tools and methods, online training etc. are available. This is a rich site which is demanding to explore.

- **Adaptation Learning Mechanism** (www.adaptationlearning.net): This is an initiative in knowledge management on projects and practices in adaptation, jointly built by UNCDF, UNDP, World Bank, UNFCCC, UNEP, FAO and several other international organisations. This site offers in particular vulnerability profiles by country (for example presenting the main themes of the PANAs) and a search engine dedicated to national adaptation projects which are ongoing (and led by the various UN agencies). This could be an interesting tool for checking the coherence of one's own projects with existing initiatives.

- **ClimatePrep** (www.climateprep.org): This site is hosted by the WWF but welcomes external contributions. At once an exchange platform on practices and a sort of "reflection blog" of the "perfect adapter", all done with plenty of humour.

- **Climate Centre** (www.climatecentre.org): The content of this platform set up by the Red Cross/Red Crescent movements is oriented towards the reduction of risks associated with natural catastrophes.

- **Climate and Development Knowledge Network** (www.cdkn.org): This is a cooperation between several research institutes (in particular ODI) and NGOs. The site offers a "blog", scientific articles on different subjects linked to climate change.

- **Practical Action** (www.practicalaction.org): This site provides numerous examples of adaptation and references to come to terms with climate change.

- **ELAN Ecosystems & Livelihoods adaptation network** (www.elanadapt.net): This network recently created by Care, IIED, IUCN and WWF promotes adaptation strategies based on the rehabilitation and conservation of ecosystems. The site is simply a shop window for the activities of ELAN and offers the possibility of becoming a member.

- **Climate portal of the World Bank** (http://sdwebx.worldbank.org/climateportal/): This website is very aesthetically pleasing but does not provide sufficient information.

Regional:

Africa:

- **AfricaAdapt** (www.africa-adapt.net) and **Endacommunities** (www.community.eldis.org)

Asia and the Pacific:

- **Asian and Pacific Climate change adaptation** (http://www.asiapacificadapt.net/)

- **International Centre for Integrated Mountain Development** (www.icimod.org): mountain regions of Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. This network —whose website is very rich and is complemented by a geoportal—is funded by GTZ, FAO, UNEP and the World Bank.

TOOLKIT 1

Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies

> United Nations Environment Programme (UNEP)

1st edition: 1998

Available in: English

Scale of application: National or regional

Implementation time frame: Several years, because of its multi-sectoral character

Country where the method has been implemented: Cameroon, Pakistan, Estonia, etc.

Application: Multi-sectoral; all sectors affected by climatic change

Target readership: National governments

Summary description

This document of 464 pages is an introduction to a wide selection of methods which can be used for evaluating the impacts of climate changes and adaptation strategies. It is not a practical manual in the full sense. It is not didactic and does not prescribe one single method. It has been used particularly for the evaluation of the impacts of climate change and of adaptations in a number of countries under the aegis of UNEP/WEF, thus implementing a first stage of the NAPAs.

The aim of this guide is to give sufficient information to enable users to choose the method most appropriate to their particular situation. Five large family groups of methods for impact assessment have so far been developed:

- Palaeological, archaeological or historical studies: how climate change and climate variations have affected human and natural systems in the past.
- Forecasts based on climatic analogies: current climatic events (droughts, floods, storms etc.) are used as a basis for evaluating the impacts of future climatic events in a climate modified by human action.
- Studies of the impacts of present day climate and climatic variability.
- Creation of models, often quantitative, dealing with the relation between climatic variables and certain sectoral impacts. They answer questions of the type: "what would happen if…?"
- "Expert opinions", referring to methods in which high ranking specialists are brought together to develop a consensus. A particular example is the production of reports of the IPCC.

The handbook includes multi-sectoral chapters of a more methodological nature, and others on particular sectors:

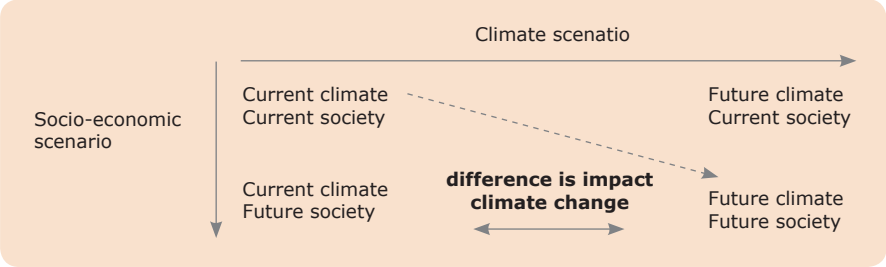
1. **Setting up the study:** This part aims to assist in asking the right questions before beginning such an evaluation. The response to these questions will affect the scope of the analysis and the coverage of the findings.
   What is the research agenda? What are the aims of the evaluation? What limits should be set for the evaluation (geographical limits or limits to the depth of analysis)? What sectors will be included in the analysis? How to ensure that different studies are comparable? How to ensure the multi-sectoral nature of the evaluation? How to communicate the results? What methods and tools should be used? Etc.

2. **Socio-economic scenarios:** A number of socio-economic scenarios (World Food and Agriculture Organisation (FAO), World Bank, IPCC etc.) exist at the macro level. They are used in particular to formulate emission scenarios of greenhouse gases and the corresponding climatic scenarios.
   There is probably an essential flaw in many of the methods (especially community assessment of vulnerabilities) presented in this handbook in that they work on the basis of constant socio-economic conditions. Even at local level, it is important to have a vision (which may be qualitative in the absence of quantitative data or projections) of the way in which the population and its activities will evolve in the future, in view of the major current trends. Apart from the question of emissions of greenhouse gases, this forward vision will naturally have an influence both on the future impacts of

climate change (in terms of sensitivity to risk and costs for example) and on the adaptation strategies to be implemented.

3. **Climate scenarios:** This chapter describes the types of climatic scenarios which have been produced up to now. It is interesting to consult it in order to understand better the way in which they have been put together, how to use them, and what their limitations are, especially in view of their hypothetical character and their low level of spatial resolution (25 km at best, with numerous approximations in mountainous areas and regions of large lakes).

5. **Adaptation to climate change:** In order not to overestimate the negative impacts of climate change and vulnerabilities, it is necessary also to evaluate the possibilities of adaptation (behavioural changes, preventive actions, migrations etc.). This evaluation also makes room for the involvement of the interested parties in the reduction of risks associated with climate change. The handbook offers eight tools – mostly based on a financial approach to adaptation measures – for carrying out this analysis at the macro level, leaving out the micro level.



4. **Systematic evaluation of impacts:** The handbook puts forward a systematic vision of evaluation, taking into account the interactions between the different impacts of climate change. Although relatively difficult to execute because of the complexity of the phenomena and the uncertainty inherent in the scenarios, this approach is the most capable of putting forward an accurate vision of long term changes. Some of the methods presented in the present guide attempt to rise to this challenge (in particular the Guide published by the French Ministry of the Environment).

6. **Sectoral approaches for evaluation:** These chapters also propose tools appropriate to each of these themes: water resources, coastal zones, agriculture, pasture and livestock, health, energy, forests, biodiversity, and fish resources.

KEY POINT

Pros

- A huge amount of compilation work and an inexhaustible source of bibliographic references. This handbook helps to familiarise the reader with the question of climate change and its impacts, and also with all the possible methods for researching the local effects of climate change. Recommended reading before embarking on a study of vulnerabilities and climate change adaptation capacities, to get a good grasp of the subject.

Cons

- In attempting to be exhaustive, the handbook has also become very long.
- The handbook has little operational application.
- The handbook mainly focuses on a macro-economic research approach at national level.

▶ **Find out more:** http://www.ivm.vu.nl/en/Images/UNEPhandbookEBA2ED27-994E-4538-B0F0C424C6F619FE_tcm53-102683.pdf

TOOLKIT 2

User's Guide for Local Governments: Analysis of Socio-Economic Vulnerability to Climate Change

> French Government – SOGREAH Consultants

1st edition: 2011
Available in: French
Scale of application: The guide suggests three appropriate sizes of analytic grid: the commune, the "livelihood basin" and the department. In some cases, it recommends working by geographic unit: watershed, coastal area, high mountain zone, etc.

Implementation time frame: About 2 months
Country where the method has been applied: France
Field of application: Economic activities of the administrative area
Target readership: Local governments, research organisations

Summary description

This methodological guide aims to support local administrations in France in carrying out long term planning for their areas, taking into account the economic dimension of the impacts (negative or positive) of climate change. It enables them to produce a preliminary assessment of the activities and actors affected by climate change and to identify priority issues. This assessment can then serve as a means for mobilisation and awareness-raising.
It is made up of 3 stages:

- **Characterisation of the area**: categories of activities which have high socio-economic importance for the area; selection of physical environments for which the issues are more critical (coastal, plains and estuaries, mountains, valleys subject to natural risks, urban areas etc.);
- **Application of analytic tools**: these aim to take into account the impacts of climate trends (mean and maximum temperatures, precipitation regime s, temperatures of rivers and lakes, snow coverage etc.) and extreme climatic events (droughts, floods, etc.) on activities in the area, using a matrix of vulnerabilities up to 2080. An analysis of past climatic events and responses to them is also included.
- **Establishment of a provisional vulnerability assessment**: this stage enables priorities to be set according to the scope of the impacts, the degree of vulnerability and its long or short term nature.

Why is this method included here?

The method offers a long term view, on a regional scale, of the vulnerability of the means of subsistence. Most of the methods covered in the present guide tend not to take sufficient account of the private sector in adaptation strategies. However economic activities in developing countries will also be impacted by climate change, and this may have negative or positive effects on an entire economic system. This pre-assessment may be useful to NGOs wishing to take more of an "overview" of the potential consequences of climate change for the economy of a country or a region where they operate, in the sense that these consequences will probably have an effect on their own activities.

KEY POINT

Pros

- Analysis of chains of impacts (interactions between activities and effects of spatial spread.
- Ranking of vulnerabilities by scale of impacts, degree of vulnerability and timing.
- Proposes methodological points of focus to improve the method in line with the local area context.

Cons

- An economic vision of climate change: neither environment (biodiversity and availability of natural resources) nor social aspects are included in the scope of the analysis, except in so far as they create collateral damage for economic activities.
- The method is "top-down": there is no room for public participation. Even local decision makers are not necessarily involved in the assessment. The formulation of the guide presupposes a familiarity with this type of analysis.
- Constant economy approach.

▶ **Find out more:** http://www.developpement-durable.gouv.fr/IMG/pdf/ED37.pdf

TOOLKIT 3

Analysis of Vulnerability and Capacity for Adaptation to Climate Change (CVCA)

> CARE

1st edition: 2010

Available in: English, French, Spanish, and Portuguese

Scale of application: Community, especially rural communities

Implementation time frame: About 6 months for an in-depth analysis (but it can be less)

Countries where the method has been applied: Bolivia, Peru, Ecuador, Ghana, Niger, Tajikistan etc.

Field of application: Securing the means of subsistence, food security (agriculture), disaster risk reduction, health

Target readership: Project holders NGO or governmental), communities

Summary description

The CVCA is a method of collecting, organising and analysing information on vulnerability and adaptation capacities of communities, households and individuals. It also takes into account the role of local and national institutions and policies in facilitating adaptation. Combining scientific data, research on levels of integration of climate change at national and regional levels and community knowledge about climate, it aims to improve understanding of local impacts linked to climate change.

The manual provides a series of questions which are designed to facilitate and guide collective reflection on vulnerabilities and adaptation capacities. The information collected refers to national, local and domestic/individual levels. Through a participatory process (mainly focus groups, workshops and interviews), it fosters the involvement of stakeholders and collective learning.

The manual includes a detailed presentation of the method arranged into four themes (resilient means of subsistence, Disaster Risk Reduction (DRR), capacity building, and underlying causes of vulnerability). Tools for facilitation of the process are also provided in worksheets.

KEY POINT

Pros

- Available in several languages.
- Can be adapted by the user to analyse a particular sector (forestry, energy, health etc.).
- Offers a flexible and user-friendly framework based mainly on open-ended questioning.
- Contains numerous sources of information
- Is specifically centred on vulnerabilities to climate change.
- Promotes a community based participatory approach.
- Combines scientific climate data and community knowledge.
- Insists on the need for articulation between the different levels of decision making.
- Focuses on the most vulnerable groups.

Cons

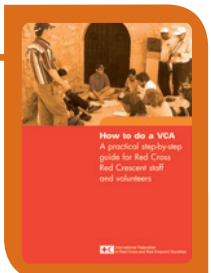
- Analysis mainly reliant on qualitative information, which restricts the possibilities of objective comparison with the situations of other communities.
- Not much innovation in the tools used (Venn diagram, risk mapping, vulnerability matrix, etc.).
- Stages following the assessment are only briefly covered in the guidebook.
- The participatory approach may raise expectations within the community.

▶ **Find out more:** http://www.careclimatechange.org/index.php?option=com_content&view=article&id=25&Itemid=30

TOOLKIT 4

Vulnerability and Capacity Assessment (VCA)

> International Federation of Red Cross and Red Crescent



1st edition: 1999
Available in: English, French, and Spanish
Scale of application: Local, community
Implementation time frame: About 6 months for an in-depth analysis (preparation and analysis phases are the longest)

Countries where the method has been applied: Azerbaijan, Syria, Caribbean, Mongolia, Palestine, Albania etc.
Field of application: Health, disaster management (prevention and emergency actions)
Target readership: Project holders (prevention and reduction of natural risks), communities.

Summary description

The VCA consists of an orderly method of collecting data on the vulnerability of a given community to natural disasters, and of analysing and systematising the information. This can then be used to assess the main risks the community is exposed to, and its current capacities, with the aim of taking appropriate measures to reduce its vulnerability and increase its resilience following extreme climatic events.
Four practical guides which are the result of many years of experience make up this method:

A. What is CVA?
B. How to carry out a CVA? From vulnerability assessment to action plan in 12 stages:
1. *Understanding why a CVA is proposed.*
2. *Awareness raising (management of the national Society, sections and partners).*
3. *Establishing an organisational structure for the CVA.*
4. *Defining the objectives of the CVA.*
5. *Planning the CVA.*
6. *Preparation phase.*
7. *Using appropriate tools to carry out research with the community.*
8. *Systematising, analysing and interpreting the findings.*
9. *Returning the findings to the community and deciding on priorities and changes to put in place.*
10. *Transforming vulnerability into capacity through practical measures.*
11. *Writing up recommendations and a report to local authorities, donors and partners.*
12. *Implementing the programme: community risk reduction projects.*

C. The CVA toolkit
D. CVA Training

A book of recommendations and lessons learned about CVA has also been published.

KEY POINT

Pros

- Available in several languages.
- Pedagogical, detailed and easy to access. Promotes a community participatory approach, based on strong involvement of political leaders at several levels of administration.
- Tends towards a multi-sectoral analysis of vulnerabilities and adaptation capacities.
- Promotes a community participatory approach, based on strong involvement of political leaders at several levels of administration.
- Provides a 6 day training kit which includes a detailed work programme.
- A very good and solid "toolkit", which is useful to facilitate exchange of information, research and synthesis of data.

Cons

- The method is not specifically linked to the impacts of climate change, but to the risks of natural disasters (climatic extreme events but also earthquakes etc.), although some trends such as frequency and intensity of extreme events are integrated into the analysis. However there is no reflection on long term climate trends.
- The rather rigid nature of the method may be off-putting.

▶ **Find out more:** http://www.ifrc.org/en/what-we-do/disaster-management/preparing-for-disaster/disaster-preparedness-tools/disaster-preparedness-tools/

TOOLKIT 5

Climate Change and Environmental Degradation Risk and Adaptation Assessment (CEDRA)

> TEARFUND

1st edition: 2009

Available in: English, French, Spanish, Portuguese, and Bangla

Scale of application: Local, community

Implementation time frame: 22 days for analysis

Countries where the method has been applied: Bangladesh, Honduras, India etc.

Field of application: Evaluation of "climate-proofing" of development and disaster risk reduction projects

Target readership: Project devoppers and managers, communities.

Summary description

The CEDRA method aims to account for risks and vulnerabilities linked to climate change and environmental degradation.

The process includes six stages:

1. Identifying climatic and environmental hazards from scientific and community sources of information.
2. Classifying hazards in order of priority importance to be addressed, according to the degree of impact of the hazard and the sensitivity of the community to it.
3. Deciding on appropriate adaptation solutions.
4. Identifying possible actions to be taken if the risks to existing projects cannot be managed.
5. Designing new projects and new locations for projects.
6. Continuous revision process: integrating awareness of climate change and environmental degradation "into everything we do".

KEY POINT

Pros

- The method attempts to quantify impacts in order to rank measures to be taken.
- Very pedagogical. Models of evaluation grids and data compilation are given in Word (unlike other methods).

Cons

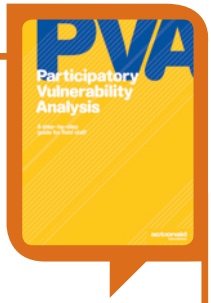
- The questions to be asked to establish the assessment often seem unrealistic or need more detail about how to get meaningful responses (for example: "do you have information on forecast climate changes: in the next 5 years? 10 years? 20 years? 30 years?"
- The implementation time frame suggested (22 days) for applying the CEDRA seems short given the relatively slow participatory processes envisaged.
- The adaptation strategies proposed for an identified type of vulnerability are sometimes not very explicit.

► **Find out more:** http://tilz.tearfund.org/Topics/Environmental+Sustainability/CEDRA.htm

TOOLKIT 6

Participatory Vulnerability Analysis (PVA)

> ActionAid



1st edition: 2005

Available in: English

Scale of application: Local, community

Implementation time frame: 7 days, ncluding preparation, team training, field work and analysis

Countries where the method has been applied: Zimbabwe, Sierra Leone, Brazil etc.

Field of application: Wide, but with a focus on health and disaster management and conflict or post-conflict situations

Target readership: Field development project holders and communities.

Summary Description

PVA is similar to CVCA (CARE) in its structure. However its form is less didactic and it is not specifically aimed at vulnerabilities linked to climate change. The guide also refers to other tools developed by ActionAid (REFLECT or Participatory Rural Appraisal (PRA) which could complement the area assessment.

This is a participatory method which is designed as a multi-scale reflection manual.

The guide proposes four analysis stages:

1. Retracing the history of past hazards in order to determine the level of exposure to risk, and the causes and effects of these events;
2. Identifying the conditions for insecurity, that is the factors which make local people exposed to risk at a given time;
3. Representing the system and the factors (dynamics) determining vulnerability, resilience and their underlying causes;
4. Analysing the adjustment capacities and their effects on reducing vulnerability.

KEY POINT

Pros

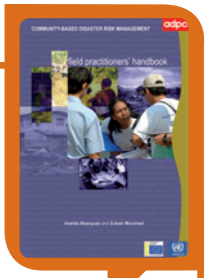
- A good guide to reflection which enables the setting in train of an evaluation of vulnerabilities (the metaphor of "eating the elephant" seems appropriate!), especially the four synthesis forms for each stage of the analysis.
- The integration of different scales of analysis (community, regional, national and international) in a holistic approach.

Cons

- Only available in English.
- The description of the different stages is summary (only 27 pages) and gives little content on "how to do it."
- No illustrations or case studies.

▶ **Find out more:** http://www.actionaid.org.uk/100262/participatory_vulnerability_analysis.html

TOOLKIT 7



Community-Based Disaster Risk Management (CBDRM)

> Asian Disaster Preparedness Center (ADPC)

1st edition: 2004
Available in: English
Scale of application: Local, community
Implementation time frame: About one year
Countries where the method has been applied: South East Asia (Philippines, Indonesia, Vietnam, Cambodia etc.)
Field of application: Disaster management (prevention and emergencies)
Target readership: Development project holders, community organisations and institutions.

Summary Description

This handbook of 163 pages, which is very well documented, is the result of a year's work by the ADPC to build capacities and to prepare and protect communities exposed to risk in South East Asia (Cambodia, Indonesia, Laos, Philippines, Thailand and Vietnam). However the handbook can easily be transposed to other contexts.

It presents a project process in seven stages:
1. Selecting the community: this stage depends on the mandate of the organisation doing the analysis, the number of project beneficiaries (cost-benefit), personal interest and the capacity of the local community to be "seen";
2. Building relationships and understanding in the community (social groups, customs, economic activities, spatial characteristics, vulnerable groups or households);
3. *Participatory Disaster Risk Assessment (PDRA)*: description of hazards affecting the community, mapping of hazards, analysis of vulnerabilities and capacities of the community, men and women, identification of disaster risks, ranking of disaster risks, decision on acceptable level of risk, implementation of strategies for prevention and mitigation, "transfer" or "living with" the risk. The analysis is very detailed and deals particularly with organisational questions within the communities or households themselves, as well as with the motivation/attitude, proactive or otherwise, of individuals in the upstream management of risk. A number of facilitation tools are presented;
4. *Participatory Disaster Risk Management Planning (PDRA)*;
5. Creating and training a community organisation for risk management;
6. Community **implementation** of risk management plan;
7. Participatory **monitoring and evaluation**.

The guide also contains recommendations on communication relating to risk management and on the issue of gender.
Finally part of the handbook is devoted to a description of South East Asia (socio-economic situation, natural hazards in the region, vulnerabilities, and impacts of natural disasters).

KEY POINT

Pros

- The most complete of the methods presented in this best practice guide, although it does not specifically concern vulnerability to climate change.
- Integration of institutions and local governments into the evaluation is required. A specific training manual (in 20 sessions) is also available for government agents and members of local administrations to train their teams in CBDRM or to facilitate the implementation of CBDRM at local and community level.
- Very pedagogical and well structured.
- A multi-sectoral vision of risk and vulnerability.
- Numerous illustrations with practical examples from South East Asia.

Cons

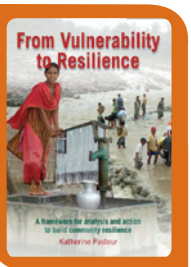
- Because it is centred on natural disaster management, climate change and the integration of climatic projections and scenarios do not feature, nor do adaptation strategies. The idea of climate change is not referred to.
- Only available in English.

▶ **Find out more:** http://www.adpc.net/pdr-sea/publications/12Handbk.pdf

TOOLKIT 8

From Vulnerability to Resilience (V2R) Conceptual Framework

> Practical Action



1st edition: 2009

Available in: English

Scale of application: Local, community

Implementation time frame: Not specified

Countries where the method has been applied: Bangladesh, Sri Lanka

Field of application: Means of subsistence security, food security (agriculture), disaster risk reduction, health.

Target readership: Vulnerability reduction project holders and community organisations.

Summary Description

This framework document is a consolidation of the different experiences of the "Reducing Vulnerability" programme of Practical Action. Although not a complete method in itself, the document details the analytical framework in which the NGO's actions are situated, and the different entry points for reducing vulnerability. Based on a community approach to adaptation, Practical Action aims to promote a systematic vision of vulnerabilities by integrating several different sources of sensitivity to risk.

After this, and remaining within this holistic approach, Practical Action briefly reviews the possible complementary approaches to reducing the vulnerability of populations and areas:

1. Strengthening strategies for adjustment and protection of the means of subsistence;
2. Reducing the impact of natural hazards (disaster preparedness);
3. Reconstruction of damaged or destroyed means of subsistence;
4. Conflict resolution and consensus building;
5. Promoting sustainable management of natural resources;
6. Improving knowledge of the impacts of long term trends and the means of mitigating them, in order to encourage better policies at local, national and international levels;
7. Strengthening the capacities of community organisations and other local institutions to represent vulnerable people and to be able to use available technologies;
8. Building alliances and networks with actors at different levels to strengthen the effectiveness of risk management policies, by seeking consensus and integration of all the stakeholders;
9. Facilitating policy initiatives which contribute to reducing vulnerability, in particular in the field of social security;
10. Emergency actions in post-disaster situations.

KEY POINT

Pros

- This is essentially a conceptual framework offering a systematic vision of adaptation and different possible levels of intervention.

Cons

- The ten adaptation processes referred to do not contain proposals for operational activities to be supported by NGOs.

▶ **Find out more:** http://practicalaction.org/conceptual-framework-for-reducing-vulnerability-1

TOOLKIT 9

Adaptation Wizard

> UK CLimate Impacts Programme (UKCIP)

Most recent edition: 2010 (V.3)

Available in: English

Scale of application: Organisations (businesses, institutions, non-profit organisations etc.)

Implementation time frame: 6 working days

Countries where the method has been applied: Royaume-Uni

Field of application: All sectors of activity

Target readership: Managers of businesses or organisations.

Summary Description

Adaptation Wizard is one of the few tools aimed at managers of organisations (businesses or NGOs) to evaluate the exposure of their activities to climate change and to establish an adaptation strategy where the vulnerabilities prove to be significant. It also enables them to raise the awareness of members of their organisation of this problem and its potential long term implications for the activities of the organisation. Thus it requires work to be done internally with the members of the organisation and with its strategic partners.

The analytical framework is developed in five stages:

1. Preparation phase;
2. Evaluation of vulnerability to current climate;
3. Evaluation of vulnerability to future climate. Apart from the risks linked to climate change, all organisations face some "classic" risks: strategic (where the activity itself is impacted), environmental, operational, financial, reputational and security risks. These need to be ranked and priorities identified among the whole set of potential risks;
4. Identifying, evaluating and implementing adaptation measures. The evaluation of the different options depends on a number of factors: the time frame for implementation, the level of adaptation required (the cost), the potential synergies with other measures, the degree of acceptance of the risk;
5. Monitoring and potential revision.

The tool also contains a checklist of questions to be answered as the analysis progresses, and Excel spreadsheets to record the key information.

KEY POINT

Pros

- A useful tool for involving the private sector in adaptation, especially in the most sensitive sectors (port activities, agriculture and food etc.). It could be advantageous to offer capacity building for business managers in the South.

Cons

- "*Unlike mitigation, adaptation could provide immediate local benefits […] Adapting to climate change could be good for your reputation*". This quotation from the document may invite the reader to question the motivation for and the real impacts of this method of analysis on changing practice, compared with.
- The climatic scenarios presented are based on relatively optimistic hypotheses.

▶ **Find out more:** www.ukcip.org.uk/wordpress/wp-content/Wizard/UKCIP_Wizard.pdf

TOOLKIT 10

Community Based Risk Screening Tool Adaptation & Livelihoods (CRISTAL)

> IISD (International Institute for Sustainable Development), IUCN (International Union for the Conservation of Nature), Swiss Foundation for Development and International Cooperation and Stockholm Environment Institute (SEI)

Most recent edition: 2009 (version 4.0)
Available in: English, French, and Spanish
Implementation time frame: 1 to 6 working days

Field of application: All sectors of activity
Target readership: Natural risk management project holders, communities

Summary Description

CRiSTAL (Community Based Risk Screening Tool – Adaptation and Livelihoods) is a participatory tool based on the identification of sustainable means of subsistence. It promotes the integration of risk reduction and climate change adaptation into community based projects by helping project holders:

- To understand how current extreme climatic events and climate change affect the project area and the means of subsistence.
- To observe how local people adapt themselves to these climatic stresses.
- To evaluate the impact of a project on the means of subsistence which are vulnerable to climatic risks and/or are important for local adaptation capacities;
- To make adjustments to improve the project outcomes for adaptation capacities.

The tool is made up of a handbook and an Excel spreadsheet; it follows a series of stages, and the majority of the information is obtained through local consultations with stakeholders. Only a minimal amount of secondary scientific information is required. The Excel spreadsheet provided enables users to compile and synthesise the data.

KEY POINT

Pros

- One of the most frequently used community-based methods, with a large amount of feedback from experience;
- CRiSTAL is tending to become a standard for donors who require an analysis of vulnerabilities and adaptation capacities to be carried out as a precondition for project funding;
- The method is highly structured, but remains easy to modify (for example an individual scale can be introduced);
- Available in several languages.

Cons

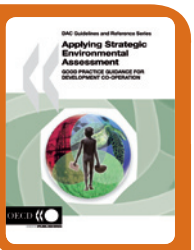
- More of a consultation and data synthesis tool than a participatory method. CRiSTAL suffers from the "tunnel effect": the information is collected through work shops and is "processed", then the results are presented and finally discussed. However, when used together with a community-based adaptation method, CRiSTAL could be appropriate.
- In attempting to make the analysis "automatic", this tool leads to a Manichean vision (for example, an adaptation strategy is judged effective or ineffective, but without referring to its possible pedagogical value).

▶ **Find out more:** http://www.iisd.org/cristaltool/

TOOLKIT 11

Strategic Environmental Evaluation (SEE)

> Organisation for Economic Cooperation and Development (OECD)



1st edition: 2006

Available in: English, French

Scale of application: All area scales (national, regional, local, community)

Implementation time frame: Depends on size of project evaluated. May extend to up to 3 years

Countries where the method has been applied: World wide

Field of application: All sectors of activity

Target readership: National governments, international development agencies, funders of development projects and programmes

Summary Description

A strategic environmental evaluation is "a systematic process aiming to evaluate the environmental consequences of a proposed policy, plan or programme (PPP), in such a way as to ensure that these consequences are fully taken into account at the earliest stage of the decision making process along with economic and social considerations". It may cover programmes of varied nature: anti-poverty, sectoral projects (energy, water, education etc.), infrastructural investment, industries etc. The SEE enables early consideration of impacts, before the final definition of the PPP. It allows for better control of interactions or cumulative effects. It also integrates the analysis of potential effects of alternative proposals and options. It implies an active participation of all the stakeholders in the PPP being evaluated.

The guide is divided into three sections:

- Definition of the SEE and justification of environmental evaluation in development projects;
- Best practice guide for the implementation of a SEE;
  - Illustration through case studies of instances where a SEE has been implemented;
  - Evaluation of a SEE;
- Capacity building for carrying out a SEE.

This best practice guide has been added to later by several documents of recommendations, and in particular in 2008 by a document on the integration of climate change into SEE (mitigation and adaptation). It aims to apply a "climate lens" in the strategy or the formulation of PPPs, by proposing a series of questions to be considered during the preparation and the implementation of the SEE. This clarification will enable "climate proofing" of PPPs to be evaluated before their implementation, and gaps in data on climate change and in integration of the problem into national policies to be flagged, so as to inform and influence the decision makers in PPP on these questions.

KEY POINT

Pros

- The method can be useful for an NGO in several ways:
  — To evaluate ex ante its own programmes and action plans, and so to limit the risks posed by climatic uncertainty
  — To encourage the integration of environmental and climatic aspects into capacity building in the South
  — To inform advocacy in identifying failures in integration of these aspects into public policy.
- The method is sufficiently generic and classical to be applicable to all types of context.

Cons

- Le guide n'est pas très pédagogique et le jargon utilisé peut être un frein à sa prise en main.
- La préparation de l'analyse et l'adaptation de la méthode à chaque pays peut prendre du temps.

▶ **Find out more:** http://www.oecd.org/dataoecd/4/21/37353858.pdf

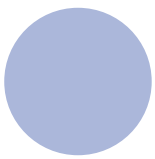
Keys to understanding the case studies

The notes used in these case studies do not aim to pass judgements on the nature of the project, the quality of the analysis used in the assessment, nor the appropriateness of the activities implemented. The evaluation's only aim is to compare, in a real setting, the theory to the practice of methods of analysing vulnerabilities and adaptation capacities. It is intended to enable recommendations to be made and good practices to be identified which can be easily replicated in future adaptation projects.

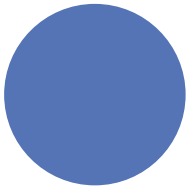
→ Evaluation Criteria

1. Type of vulnerabilities considered (environmental, economic, social);
2. Integration of the climate change dimension into the project;
3. Carrying out of an assessment of the system of actors in place, to evaluate adaptation capacities;
4. Systematic (impact chains) or sectoral (health, energy, agriculture, water….) character of the analysis;
5. Choice of analytical scale in view of the project objectives;
6. Operational dimension of the methodology used and replicability of the method;
7. Innovative character of the methodology used;
8. Participatory approach, leading to citizen ownership of the agenda;
9. Combination of "formal" scientific data with local people's knowledge of the climate of their region;
10. Care taken to integrate in the analysis the differentiated vulnerability of different groups (women, migrants etc.);
11. Taking into account development priorities or adaptation strategies at different territorial levels;
12. Search for institutional or local partners to obtain the necessary data for the analysis and setting up of adaptation action programmes;
13. Taking account of preservation of biodiversity within the adaptation activities;
14. Membership of the project in an exchange forum and/or lesson learning.

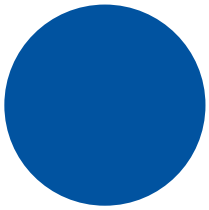
→ Grading System



Criteria is not taken into account by the methodology.



Criteria is partially taken by the methodology, which could be improved.



Criteria is taken into account by the methodology. Lessons can be learned from this case.

Médecins du Monde (MDM): Disaster Risk Reduction Programme, Madagascar

Duration: 18 months (October 2008 – March 2010)

Budget: for the "Community dynamic for risk and disaster management" component; about €150,000

Size of MdM team: 13, of whom 4 are specialised in community animation

Geographical extent: district of Maroantsetra (6,875 km2) in the extreme North East of Madagascar, bounded by the Indian Ocean

Population concerned: population of 4 pilot communes (Ambinantelo, Ankofa, Manambolo, Anjanazana) or about 75,000 inhabitants

Stakeholders: DIPECHO programme of European Union (funding agency), MDM, MEDAIR (water and sanitation), CARE, representatives of commune Committees and local committees for risk and disaster management, population of the 4 pilot communes

Methods used: community and participatory analysis of natural disaster vulnerabilities ("bottom-up" approach)

Contact: Stéphanie Derozier (Stephanie.derozier@medecinsdumonde.net)

References: *Lessons learned*, 2008-2010 DRR Programme, Médecins du monde, December 2010.

C. Buffet, *Comparative Analysis of DIPECHO Programmes faced with Bingiza Hurricane*, DRR Programme, Médecins du Monde, July 2011.

A. Bonnet-Casson, *Flood Vulnerability Mapping of Pilot Areas*, Médecins du Monde, April 2010.

Interview on 17th June 2011 with Stéphanie Dérozier, Programme Manager? Médecins du Monde.

Adapted from: UNOSAT, 2007

Synthesis of project

Madagascar is considered in many classifications to be one of the most vulnerable countries in the world (3rd in the Maplecroft 2011 classification after Bangladesh and India; vulnerability classed as "grave" according to the Climate Vulnerability Monitor of DARA etc.).

Regularly at the mercy of violent winds and destructive rainfall caused by tropical depressions formed over the Indian Ocean and tracking from east to west between December and April, Madagascar suffers the severe consequences of extreme events which are frequent although relatively limited in scale. The high prevalence of poverty, population growth, food insecurity and environmental degradation place the Malagasy population in a heightened state of vulnerability to natural disasters. This state of affairs is aggravated by the weakness of systems of intervention in case of disasters, by the structural inadequacy of infrastructure, and by a number of inappropriate practices of the population themselves (e.g. contamination of water points). The degradation of the road network throughout the district makes it often impassable during the rainy season (December to April) and the inadequacy of Maroantsetra airport (capable of taking only small aircraft) means that the region is totally isolated when disasters occur. As a result the inhabitants move around mostly by pirogue throughout the year.

The DRR programme aims to contribute to setting up measures to enable the health effects of natural disasters (cyclones and floods) on the population of the district of Maroantsetra to be alleviated.

The starting point of the DRR approach consists in mobilising communities to identify, with the support of the MDM outreach workers, the extreme climatic events which occur and the vulnerabilities of the population to these events, in order to put in place a movement towards prevention (strengthening of weak points), basing this dynamic development on the community's assets and strengths (notably the authority of group decisions over individual actions).

In parallel with these developments an anthropological research study has been conducted to analyse the community organisation of the district, and also the structures of solidarity and power. This has enabled the Carreau (block) chiefs to be identified as the most appropriate channels for community mobilisation.

Maps from the Bureau National de Gestion des Risques et des Catastrophes were used to draw up a pre-assessment of vulnerabilities, in order to select priority communities in terms of their vulnerability to flooding.

Methodology employed

Apart from its innovative aspects, the advantage of the DRR approach within the activities of an emergency NGO is to offer an analytic framework which is more suited to comprehending the interactions between health and other themes (food security, environmental degradation, water and sanitation…) as well as the regular cycles of disasters (which are more predictable in Madagascar than elsewhere) in the current climatic context.
About twenty interviews with local actors were conducted at the preliminary stage.
Next, a participatory analysis of vulnerabilities, carried out through a series of workshops **lasting 11.5 days** and led by the outreach workers of MDM, enabled the population, via its community representatives, to define for themselves the vulnerabilities affecting their commune (or the Fokontany, a smaller scale administrative entity, where appropriate).

They established in particular (see diagram):
- A cartography of their zone including the impacts of previous extreme climatic events
- A list of causes and consequences in the form of problem trees around themes determined by them (health, habitat, farming, livestock…)
- A contingency plan based on reflection about the solutions to the problems identified (improvement of shelters, health infrastructure…)

In addition, four simulation exercises were carried out in the district, each involving all the actors concerned, and bringing in "observers" (representatives of risk and disaster management committees of other communes). These exercises raised local understanding and awareness of the limitations of the current system of risk management, and encouraged joint learning through exchanges of observations.
Awareness raising programmes (song competitions, dramas) also helped to mobilise the population as a whole.
A continuous evaluation was carried out to identify gaps between theory and practice.

Exploratory mission 1 day
Establishing first contacts and collecting information on the project zone

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Formal presentation 1 day
Establishing trust, presentation of the project and expectations of MDM

↓

Workshop 1: mapping of vulnerabilities 1.5 days
Vulnerability mapping of the commune
Selection of priority Fokontany

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Workshop 2: Analysis using problem trees 1.5 days
Working out the causes and consequences of vulnerabilities

↓

Workshop 3: Strengthening capacities of the Committee, proposed solutions 2 days
Structure, role and responsibilities of the Committees. Definition of activities to be undertaken and formalisation and setting up of Committees

↓

Workshop 4: Preparation/Awareness raising and contingency planning 1.5 days
Formalisation and setting up of Committee, identification of contingency plan activities (responsibilities, means)

↓

Workshop 5: Sharing between Committees 1 day
With all the Committees; full list and distribution of activities, contingency plan, peer group visits, allocations and endowments

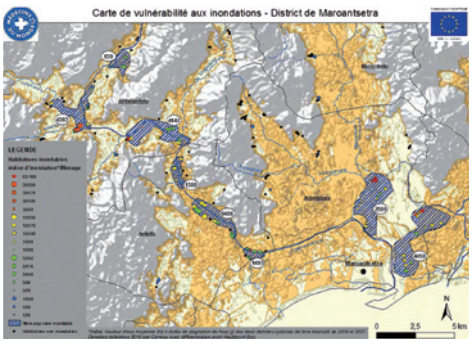
↓

Simulation exercise 1 day
Large scale testing of contingency planning

↓

Workshop 6: balance sheet and sharing between Committees 1 day
Balance sheet of activities carried out and future prospects

Source: C. Buffet, Report, *Madagascar, Programme de réduction des risques*, Médecins du Monde, Dec.2010,



At a later stage, a GIS study was carried out over 3 months, although this study was not really linked to the analysis of vulnerabilities, even though its potential contribution was significant.

This study aimed to:
1. Discover the exposure of each inhabited zone to flooding (mean water level in the two previous major floods, average duration of flooding in days, referencing of existing shelters, capacity of existing shelters, accessibility of shelters during flooding, state of shelters);

2. Describe the current services by quarter (schools, churches, wells – open and covered – pumps functioning/non-functioning, improved latrines etc.);

3. Produce vulnerability maps (inhabited zones most exposed to flooding, existing shelters and their capacity, distance from health services, chronic malnutrition areas, areas with high levels of chronic diseases and at risk of potential epidemics etc.).

Results

Apart from the results directly linked to the health component of the project (improvement of epidemiological surveillance and detection of malnutrition in collaboration with local health agents, setting up of emergency intervention teams), "the greatest contribution of MDM has been to have made us aware that suffering from cyclones and floods has nothing natural about it: it is impossible to avoid them but quite possible to lessen their effects". This quotation from Rabi Jules, Deputy Mayor of Anjanazan, taken from the lesson learning report, sums up the main achievement of the programme. The "risks and disasters management" Committees, although set up before the programme started, had long been mere shadow organs. The programme succeeded in mobilising the local actors and stimulating the emergence of a real structure of crisis management.

The impact on the knowledge and practices of the population is difficult to quantify. However, the implementation of participatory programmes of awareness raising (e.g. song competitions resulting in the filming of clips broadcast in the small cinemas in the Communes) led the population to get involved in disaster prevention, and produced a leverage effect in other communes. The NGOs operating in this project were part of a transition from a "culture of disaster" to a "culture of risk".

Apart from this new awareness, five micro-infrastructure projects were carried out in response to the vulnerabilities identified by the communities:
- Construction of a pedestrian walkway in the Fokontany of Mariarano, to maintain access in case of flooding;
- Rehabilitation of a school serving as an emergency shelter in the Fokontany of Ambodimandrorofo;
- Construction of an emergency shelter capable of holding 12o people in the Fokontany of Ambodivoanio;
- Donation of a wooden pirogue for the evacuation and transport of people to the nearest health centre in the Fokontany of Maroantsafa;
- Installation of a rice mill for use in emergency in the Fokontany of Maroantsafa, avoiding the need to move across the flood plain to use this machinery.

Next steps

MDM has passed on-site responsibility on to MEDAIR and no longer intervenes directly in the district.

A number of stages still need to be gone through in order to evaluate the medium term relevance of the project:
- Testing management plans in real situations
- Evaluating the knowledge of the communities about the management plans which have been drawn up.

This has been partly done with the evaluation of DRR projects carried out after the passage of cyclone Bingiza in February 2011. This evaluation shows an improvement in the organisation of local authorities and the adoption of safer behaviour in the project zones compared with control zones.

Lessons learned

- Reformulate the expression of needs by communities through objective demonstrations. Community involvement and appropriateness of intervention for local needs is stronger as a result of participatory vulnerability analysis. The communities move from the status of "beneficiaries" to that of actors...
- Base oneself on a minimum of scientific criteria for the analysis of vulnerabilities.
- Encourage peer exchanges (visits, simulations observed by members of RDM committees from elsewhere) to enable joint learning and create links which support the sustainability of the activities.
- Make sure that there is consistency between the different management plans implemented at different territorial levels.
- Apply for State financial involvement, to mobilise funds (especially climate funding) and to ensure an integrated policy on risk prevention. The budget for micro-projects was very limited (5,000€), based on the premise that communities would spontaneously replicate these projects using their own funds. It emerged that communities are not capable of replicating these initiatives on their own financially.
- Adapt the health section of the DRR programme to the specific context of each country (state of health structures, mobilisation of different actors, etc.).
- Use the cartographic analysis upstream during the preparation of the programme, in such a way as to identify priority zones of intervention, and downstream to complement the empirical knowledge collected through the workshops, to propose a range of strategies for risk management.
- Integrate the climate change dimension to include long term perspectives and ensure the sustainability of the activities which are undertaken.
- Establish partnerships with other field NGOs. The "vulnerabilities" entry point should imply a multisectoral approach which an emergency NGO cannot implement without going outside its mandate. Establishing partnerships with NGOs who have complementary skills could help to fill this gap.
- Plan for an additional workshop to identify the most vulnerable people. Vulnerabilities can be highly differentiated at the level of households, depending on their socio-economic status.

Our analysis

1. The vulnerabilities studied are those related to health and food security in the face of medium-intensity cyclone events. The field of analysis is therefore limited.
2. The programme took into account only the current climate at time t, and not the "climate change" dimension. The sustainability of the programme is therefore not assured (for example if the intensity of cyclones were to increase in the future, the infrastructure might not be sufficiently robust). The Madagascar National Adaptation Plan for Action (NAPA) was only consulted at the margins, because it was considered to contain several important gaps.
3. A very complete system of local actors was constructed, and also an analysis of the involvement of these actors (Rifkin axes) in the management of risks.
4. The programme tended to be systematic while remaining confined to one type of vulnerability. It was proposed to increase the multi-sectoral character of the approach by setting up partnerships with specialist NGOs in other domains.
5. The analysis was carried out at the commune level with representatives of the different Fokontany (quarters). Considering the average commune population of the 7 studied (15,000), this level seems slightly too high, especially since the anthropological study found that the essential level was that of the "carreau" (administrative unit smaller than the Fokontany) in the commune organisation.
6. The methods were like those of "research-action" in that they tested a number of techniques and methods of analysis; their replicability is therefore limited, especially because of their relatively long duration. However, recommendations were made for future projects with a view to making the analysis more workable.
7. The DRR approach undertaken by a relief NGO is innovative in itself, since it consists more of prevention than of emergency action. In addition, a number of the elements of the method are innovative: the tests, on a real time and scale, of risk reduction strategies; and the GIS approach to the study of vulnerabilities etc.
8. This is a key point of the programme: the participatory nature of the analysis enabled awareness raising, involvement and reduction of the risks of abandonment of the project to be addressed together. One essential message was got across: the consequences of natural disasters are not inevitable. Participatory workshops were also complemented by appropriate communication (traditional song competitions, competitions for innovative ideas to reduce vulnerability, drawing competitions in schools).
9. An important aspect of the programme concerns the scientific data (climatological, meteorological, statistical and geographical). These were joined up with more qualitative information gleaned from local people. In this respect the anthropological study enabled the framing of the vulnerability analysis to be refined.
10. This dimension was not specifically taken into account in the project design, although it is a recommendation for future studies. However, in practice, the anthropological study showed that the elders and the disabled were looked after by the community in case of disasters. Furthermore women were very involved in the general assemblies and the different participatory initiatives (the song competition for example).
11. Despite meetings with different territorial governmental levels, which in particular enabled certain kinds of data to be collected, national priorities were mainly taken into account in the health/DRR section; this was conversely less so in terms of development or adaptation strategies (with the NAPA playing only a marginal role).
12. Partnerships were set up, either with local institutions (communes, districts, associations) or with international NGOs who were present in the field. However lack of time was a constraint on these partnerships becoming more long lasting.
13. The dimension of "conservation of ecosystems" was not included in the analysis of vulnerabilities and adaptation capacities, especially because this was outside the classic expertise of MDM. However the role of ecosystems (forests, water, soils, biodiversity) in natural disasters is essential, both in terms of their potential mitigation or aggravation of impacts, and for the resilience of the area.
14. Although the project has not been the subject of a publication in an exchange forum, the lesson learning from it has been excellent. A lessons-learned report was produced, presenting the limitations and constraints which caused difficulties, and proposing a number of recommendations to remedy these in future projects. In addition a DVD compiling all the reports and studies linked to the programme is available.

CARE: Adaptation to the impact of rapid glacier retreat in the tropical Andes project (PRAA), Latin America

Duration: 4 years (August 2008 – September 2012)

Budget: 33 million US$ for the totality of the PRAA programme (7.5 from the GEF and 24.6 from beneficiary countries). For the CVCA Analysis section CARE contributed up to about US$ 10,000 per pilot site.

Size of Care team: in Bolivia the permanent team has four members. It is occasionally augmented by expert consultants or facilitators.

Geographical extent: the PRAA programme concerns potentially all the areas (and hence populations) directly or indirectly impacted by the retreat of the Andean glaciers. However these pilot projects, aimed at achieving a better understanding of the local implications of the rapid retreat of Andean glaciers, cover only five sites or a total of 2,300 km^2: the Shullca river watershed (232 km^2) and the district of Santa Teresa (1,340 km^2) in Peru, the municipalities of Batallas and Palca in the watersheds of Cullucachi, Amachuma Grande and Tapacaya (about 300 km^2) in Bolivia and communities in El Tambo, Papallacta and Comuna Jamanco in the watershed of Papallacta (465 km^2).

Population involved: GEF (funding agency), World Bank (executive agency of the GEF), General Secretariat of the Andean Community of Nations (regional administration of the PRAA), the Vice Minister of territorial and environmental planning (Bolivia), Ministries of Environment (Peru and Ecuador), National Climate Change Programme (Bolivia), Care, local governments, local administrations, research institutes (Institut de Recherche sur le Développement (IRD), Institute of Water and Hydrology of the University of San Andres, etc.), populations and communities.

Stakeholders: GEF (funding agency), World Bank (executive agency of the GEF), General Secretariat of the Andean Community of Nations (regional administration of the PRAA), the Vice Minister of territorial and environmental planning (Bolivia), Ministries of Environment (Peru and Ecuador), National Climate Change Programme (Bolivia), Care, local governments, local administrations, research institutes (Institut de Recherche sur le Développement (IRD), Institute of Water and Hydrology of the University of San Andres, etc.), populations and communities. A number of other funders were approached by CARE and contributed up to 1.2 million US$ to the PRAA: UK Department for International Development (DFID, funding agency), Canadian International Development Agency (funding agency), UN Habitat (funding agency), Coca-Cola Ecuador etc.

Methodology used: community participatory analysis of vulnerability to climate change and in particular to rapid Andean glacier retreat ("bottom-up" approach).

Contact: Silvia Aguilar, (Silvia.Aguilar@bo.care.org)

References: *Care Case Study: application of CVCA methodology in Ecuador, Peru and Bolivia, June 2011; Exchanges of emails with Silvia Aguilar; Websites of Care branches in Bolivia, Peru and Ecuador.*

Synthesis of the project

The glaciers of the Andean region represent 95% of the world's tropical glaciers. The retreat of these glaciers seems to be accelerating and many of them (in particular those situated below 5,000 metres altitude) are likely to disappear within 15 years, with effects on numerous communities: diminution in availability of water for human consumption, agriculture and energy production, but also exposure to other risks caused by the glaciers' retreat (landslides, mudslides etc.) For example in the past 30 years Peru has lost 22% of the total area of its glaciers. Economic losses linked to climate change could amount to 10 billion US$ per year (or 4.4% of Peru's Gross Domestic Product-GDP).

The project aims to strengthen the resilience of the ecosystems and economies of three Andean countries (Bolivia, Ecuador and Peru), by:

- Integrating the implications of glacier retreat into local and regional watershed conservation and improvement
- Including the problems of the impacts of glacier retreat in sectoral development projects
- Generating data on the dynamics of glaciers (installing glacier measuring and observation stations, use and interpretation of satellite images, economic evaluation of the costs linked to rapid glacier retreat). This component is carried out by local and foreign research institutes (including IRD). Colombia is involved in this component.

This trans-national initiative is managed by the environment ministries of Ecuador, Peru and Bolivia, and is implemented by the General Secretariat of the Andean Community in partnership with numerous other organisations including CARE. The project is financed by the GEF and lasts for four years (200-2012).

One of its main purposes is to develop pilot projects in five watersheds, to improve local knowledge and achieve efficient adaptation of communities, towns and economic activities which are particularly vulnerable, and to replicate these projects in other locations.

Care is involved in these pilot projects which aim to illustrate the costs and benefits of early adaptation. The NGO is therefore engaged in the implementation of these projects to manage watersheds identified as priority areas by the national governments.

To gain a more accurate view of the local issues, Care has entered into partnerships with universities, research institutes and meteorological services, and also with local and regional governments and local NGOs.

Bolivia. Source: *V. Laubin*

Implementation methodology

The first phase of the project consists of selection of watersheds identified as priorities by national governments. The geographical situation of each watershed is very different and demands a preliminary area assessment exercise. However all these watersheds have characteristics in common:

- Data are available on glacier retreat, as well as meteorological and climatological, and socio-economic data, and on land use etc.;
- All the watersheds are subject to identifiable and quantifiable impacts due to climate change;
- They are fed at least in part by glaciers;
- They provide water to large towns situated downstream (La Paz, Huancayo, Quito);
- Local institutional actors in the watershed support the project;

CVCA Participative Workshop in Tapacaya, Bolivia
Source: *X. Echeverria, CARE*

Following on from this phase, the methodology employed by CARE to evaluate the vulnerabilities and adaptation capacities in this project is a combination of two community-based approaches: CVCA and CRiSTAL.

It consists of 8 stages:

1. Collection of data and pre-project research on sources of information on the macro and micro context (in particular concerning the roles and strengths of institutions in planning and management of the area)

2. Planning of field work

3. Selection of communities

4. Awareness raising about climate change, risk management and the importance of a watershed approach

5. Following the reflection guidelines recommended by CVCA. To facilitate the participatory process, some participatory tools proposed by the CVCA method were transposed to the local context, such as mapping of extreme events and vulnerability matrices.

6. Collecting information and identifying possible adaptation measures using the CRiSTAL method.

7. Suggest community adaptation plans.

8. Endorsement of plans by local authorities.

On average, stages 1 to 6 took 6 months at each pilot site.
Stages 7 and 8 are being implemented through several pilot projects.

Results

Firstly the local population's perceptions of the impacts of climate change were collected. In general the workshops and focus groups came up with the following observations:

- An increase in the frequency of droughts, and of episodes of frost and hail, involving livestock losses, reduction of harvests and changes in the agricultural cycle.
- The appearance of animal and insect pests and of diseases affecting crops and livestock.
- Loss of biodiversity of seeds (farmers choose short cycle varieties to respond to climatic variability.
- Transfer of some crops to higher altitudes to take advantage of greater humidity, leading to degradation of these zones which are unsuited to agriculture.
- Disappearance of springs during the dry season, which may cause use conflicts.
- More intense rainfall events which may lead to more frequent floods and landslides.

It is noticeable that the list of observed impacts includes both effects of climate change and also spontaneous adaptation measures (which themselves generate positive or negative effects). In addition some impacts are aggravated by poor resource management (disappearance of springs). The fact that local populations have difficulty in perceiving links in the chain of impacts makes awareness raising more complex.

Secondly, diagnostic studies of vulnerabilities and adaptation capacities were established for all the communities in the pilot sites. This enabled the most vulnerable groups to be identified using community mapping.
One of the major findings in the pilot communities recently settled (in Ecuador for example), was the poor governance of natural resources (water and forests) and the local population's lack of knowledge of planning processes which could be set in train to anticipate the impacts of climate change. In the few communities where some adaptation measures have already been implemented, the structural weakness of local institutions has been an obstacle to the coordination of such activities.
In addition it was observed that local governments had only limited capacity to respond to disasters and to create early warning systems and risk management systems. In general it is rare for potential disasters to be identified. In Bolivia the rapid turnover of municipal actors contributes to this situation. Participation in the CVCA analysis enabled the competences of these local institutions to be strengthened.
The analysis also enabled missing scientific data to be identified, which was needed to establish durable adaptation strategies: the contribution of the glaciers to water resources in each watershed, meteorological data for rural areas, impacts of glacier retreat on certain very specific ecosystems such as the high plateaux or humid zones, etc.

Finally pilot projects were identified, endorsed by communities and in some cases started, such as for example:

- Promotion of integrated and participatory management of water resources in the basins of the Shullca river and the micro-basins of the district of Santa Teresa;
- Training of farmers in sustainable management of natural resources and agroforestry techniques in Papallacta;
- Training of school students at the Quisquis school in Papallacta in the management of their vegetable garden.

Next stages

- Multiplication of pilot projects in communities and encouragement of their spontaneous replication.
- Building local adaptation plans in such a way as to coordinate these projects and make sure that they fit into community, local and national management and development priorities.
- Endorsement of these plans by local authorities.

Lessons learned

- CVCA analysis has to be adapted to the local context and to the initial project objectives, which implies having already clearly defined its objectives. For example, the PRAA programme targets water resources; CVCA analysis therefore has to be itself specifically targeted on the use of water resources by communities. This may require more detailed studies on some themes.
- The capacities of local institutional actors must be strengthened to allow them to be channels of information and potentially advocates in relation to higher institutions.
- Teams conducting CVCA analysis must be better trained in order to understand the interactions between the different spatial scales involved.
- The analysis should be improved through partnerships with specialist institutions and through encouraging a better coordination between different stakeholders.
- Technical experts should be included in gathering information during the CVCA analysis in order to identify certain more specific issues.
- Workshops to be organised at times allowing the most vulnerable groups to participate.

Our analysis

1 The analysis examines the vulnerabilities of communities to the impacts of two main effects observed to result from climate change in the region: rise in temperatures and changes in the precipitation cycle. Underlying vulnerabilities linked to the environment, the economic situation and governance are also taken into account.

2 Climate change is the keystone of the project. However the programme is focused mainly on current climatic conditions. Although some climate scenarios derived from research institutes have been used, the climatic models dealing with the Cordillera are not reliable because of biases linked to relief. The analysis is therefore based on the data of the 4th IPCC report and on national data. But the uncertainty of climatic projections was not a problem because vulnerability analyses were mainly based on community perceptions of changes taking place in recent years and their consequences for the means of subsistence.

3 An assessment of actors using the CVCA method was established, and also of the roles allocated to each of them.

4 A territorial approach based on the watershed. The vulnerability analysis therefore tends to be multisectoral. On the other hand, the systemic nature of the impacts of climate change on vulnerabilities is not brought out very strongly. While the risks of disasters linked to rapid retreat are referred to, the analysis essentially concentrates on availability of water in the watershed.

5 The analysis was carried out on a community scale on small population units while attempting to take account of higher levels as recommended in the CVCA (i.e. the municipality, the watershed, the region, or the state) but without really achieving this. No linkage is established between glacier retreat, increasing water consumption in watersheds with highly urbanised populations downstream, and rural communities.

6 CVCA and CRiSTAL benefit from well-developed pedagogical supports which can be directly operationalized. Provided that the method is well transcribed into the local context, it is therefore a simple matter to replicate the analysis using the same guides to reflection. However teams responsible for the evaluation should be trained in advance.

7 The method is not particularly innovative, since it follows exactly the CVCA method and basically reiterates the tools presented in the manual (vulnerability matrices, participatory mapping of extreme events, community mapping). Cartographic supporting materials were used very little during the analysis.

8 An essential feature of the project and of the CVCA method was to involve men, women and children in different workshops in order to elicit information from different social groups. Complementary interviews were conducted to round out community historical knowledge. Some distortions in understanding of the different concepts deployed were nevertheless observed.

9 The community's perceptions of climate change were recorded. Generally speaking the link between glacier retreat and future reductions in water resources was not made explicitly by community members. Some scientific data were obtained to consolidate this knowledge, in particular from local research institutions. However no climatic projection is available for the project's watershed locations. The team was also not able to benefit from data on the glaciers themselves, because the measuring stations were still in the process of being installed.

10 Creation of a "community map" enabled the most vulnerable groups to be identified (single parent families, women farmers whose husbands were in non-agricultural employment, young children), and the role of the community in the adaptation capacities of these groups.

11 Adaptation strategies at the national and regional level being non-existent at present, and governance of natural resource management relatively deficient, the project could not help but find that there was a lack of coordination of initiatives linked to climate change at different levels. On the other hand, the initiative was conducted by the environment ministries of the three countries, and so it would appear that it forms part of national priorities.

12 The search for scientific partners seems to have been limited (at least in Bolivia) to the involvement of local sectoral experts in the analysis of the impacts of climate change. Nevertheless, because the project is a product of a multi-country programme held by governments, it was easier to obtain scientific data produced by local or foreign institutes such as GlacioClim.

13 This dimension seems to have been little taken into account in the project, although demands in terms of natural resource management (soils and water) were established. In particular there is little mention of ecosystems in the evaluation of vulnerabilities of the means of subsistence of populations living near water courses used for diverse purposes (agriculture, human consumption, aquaculture, energy production etc.).

14 A "lessons learned" report has been published, in particular presenting the recommendations for improvement of the CVCA by the field team. In addition the project is listed on the platform: weadapt.org. Although the results of the CVCA analyses have not yet been presented in public, the PRAA programme has a high visibility regionally and internationally because of its large scale. However there is no website exclusively dedicated to this programme.

IRAM: Securitisation of pastoral systems, The Sahel

Duration: 15 years (1995 -2010).

Budget: Almy Bahaim 5.24 billion FCFA, Almy Al Afia 12.19 billion FCFA, Niger PSSP 5.5 billion FCFA.

Size of teams: 5-6 persons for support to pastoral resource management and 2-3 water engineers for feasibility studies and monitoring of water-supply works.

Geographical extent: central and eastern Chad (Almy Bahaim 180,000 km^2, Almy Al Afia 25,000 km^2); east-central Niger (Zinder Region, 146,000 km^2).

Population: 130,000 inhabitants (central Chad), plus 2 million persons in the Zinder Region, Niger.

Stakeholders: Chad Ministry of Environment and Water Resources and Ministry of Livestock, Niger Ministry of Livestock, Code Rural, Ministry of Water Resources; Chad and Niger: transhumant group leaders, local land tenure authorities, decentralised technical services of Livestock and Water Resources, communes and land tenure commissions in Niger, consultants - IRAM, ANTEA Group (water engineering), BURGEAP (environmental engineering, Egis BCEOM (construction and upgrading of wells), NGOs – Karkara, AgriTchad; funding by AFD.

Methodology used: consultation and discussion with institutional actors and users of pastoral resources, action-research, support to the negotiation of social agreements on the creation and management of public pastoral water points.

Contact: Bernard Bonnet (b.bonnet@iram-fr.org)

References: exchanges of emails and interview with B. Bonnet.
Securisation des systemes pastoraux au Sahel face aux incertitudes climatiques, sociofoncières et économiques, IRAM, Report on the Symposium «Agir en situation d'incertitude » 22-24 November 2010

Synthesis of project

For the past 15 years a number of projects, mainly funded by AFD, have aimed to securitise the transhumant axes of pastoralists and access to public pastoral wells in the Sahel.
The variability of pastoral resources is at the root of the organisation of large scale mobility of pastoral communities in the Sahel. Pastoralism is in fact an adaptation strategy which is socially, politically and economically constructed and which is continually adapted and renewed in the light of the constraints which it encounters. There is a wide diversity of large scale mobility systems which deploy these strategies, elaborated by different communities depending on the area and current events.
The impacts of climate change on the Sahel are still uncertain, but they act on non-equilibrium ecosystems and therefore are bound to increase the variability of precipitation.
Current climate models simulate very different change scenarios, from more intense rainfall to aridification. Conversely, following the memorable droughts of 1973 and 1984, the past thirty years show signs of a "re-greening" following a relatively higher rainfall, along with a rise in average temperatures. However from one year to another episodes of flooding (2010) follow on from episodes of drought (2009). So mobility plays a key role in relation to climatic fluctuation and extremes: during recent droughts the more mobile herds proved relatively less vulnerable, while sedentary herds had no emergency forage stocks. So in the face of uncertainty, making mobility sustainable amounts to an adaptation strategy.
However a number of difficulties may intervene to degrade the viability of these mobile systems and make pastoral activities vulnerable: the price of cereals, the dynamics of the markets for pastoral products, the erection of spatial and social barriers to mobility, and the non-application of laws defining public policies governing access to pastoral resources. Common property resources such as water and transhumant corridors are increasingly monetised and privatised, to the detriment of the rights of pastoralists and despite what the legal texts prescribe.
Projects to securitise pastoral systems have been implemented in the Sahel region for about fifteen years. They aim to promote a better sharing of space between farmers and transhumants through discussions and consultations at different levels, leading to social agreements and to more equitable and sustainable management regulations.

The approach of these projects combines three complementary dimensions:
- Support to the management of pastoral land tenure (application of existing legal codes such as the rural codes, water code, decentralisation);
- Strengthening and development of the capacities of public actors to integrate mobility into their vision of land management and improvement at different levels: communal, departmental and regional (or even transnational);
- Turning consultation and discussion on pastoral tenure and land improvement into practice through constructing pastoral water points (wells and ponds) and demarcating transhumant corridors in agricultural zones, and facilitating the setting up of adapted management systems.

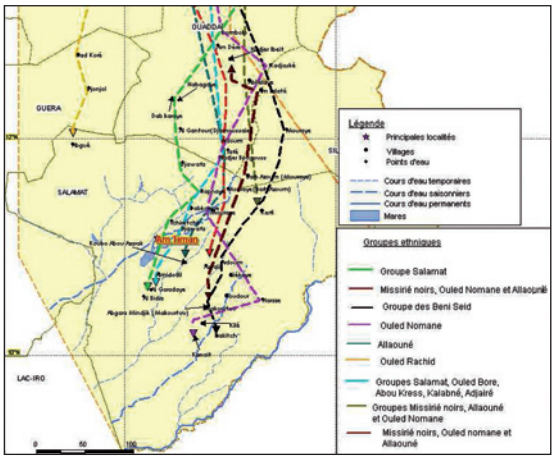
Methodology applied

The methodology developed has been built up progressively based on the capacities of the pastoralist teams mobilised by these projects. Their knowledge of the region and of current legislation and their engagement with pastoralists has played a key role in settings where there is a serious risk of social and land tenure conflict. This approach has led to the carrying out of participatory area diagnostic studies centred on pastoral resources and respect for rights: "a situation report listing for a defined area the problems, strengths and weaknesses, expectations of individuals, economic, environmental and social issues" (definition by the French Interministerial Task Force on Land Use Planning-DATAR).
Including pastoralist leaders in the diagnostic studies and in negotiations on management rules has been essential in order to ensure the strengthening of social capital and know-how among the actors in pastoral tenure in the region. Building the strategy of pastoral water supply in the region was therefore a "bottom-up" process, starting from the pastoralists' logic of mobility to communes and the regional level by way of the "Département".

As research-action projects these initiatives created their methodology, their approach and the tools they used as they progressed. Six major stages were followed in this process:

- Commune level pre-assessment of pastoral problems and current pastoral resources (interpretation of the dynamics of vegetation change by an ecologist and pastoralism researcher) with elected representatives, commune technical services, land tenure commission, sedentary and mobile traditional leaders, and herders' associations. In Niger this work was done in 55 communes and was carried out without using any special tools apart from schemas of the commune area and GIS maps of projects (see detail of a map opposite).
- Identification of transhumant leaders through local markets.
- Analysis of mobility systems (using interviews): fine-detail understanding of the mobility strategies of different communities and involvement of mobile leaders in debates within public institutions at commune, department and regional levels about improvement and management of pastoral resources and infrastructure.
- Negotiation days at commune level, between communal councils and representatives of transhumant people, on priorities for securitising mobility; discussion and agreement workshops using traditional meeting forums; mapping, schemas, GPS data and demarcation of land tenure.
- Département level workshop to coordinate communal priorities, bringing together Département level actors to agree on communal plans and to endorse the strategy for management of water installations, and on the process of facilitation of social agreements for the delimitation of pastoral spaces.
- Support for site by site negotiations to reach social agreements for installing water points and demarcations of transhumant corridors and pasture areas.
- Implementation of construction works: well construction and placing of land demarcation sign.

All the communities of the communal lands under study were included. The process was relatively long drawn-out because of the time needed for building trust between the different stakeholders (in particular with the herders' leaders) and for the social agreements to mature. In some Départements each commune made its own proposals for priority sites. Then each potential well site was subject to a specific feasibility study covering social, tenure and hydraulic aspects, culminating in a social agreement to install pastoral wells, between communities with land title to the sites and herders' groups exercising user rights. This social agreement on the site and the principles of equitable public management served as the basis, after one or two years, for the formulation of a charter of local management and a *convention de gérance* or governance convention with the commune.
This process sometimes seemed long drawn-out to the local actors, who were hoping for investments to be made as quickly as in classic village water supply programmes. The long process nevertheless seems to have been a factor in creating sustainability of the project outcomes, because the long term operating principles were endorsed by all the actors in the pastoral system. Furthermore the fact that none of the wells installed led to new conflicts is a justification of a pragmatic and progressive approach.



Detail of the map «Example of migration movements», Almy Bahaim Project, March 2009.
Source: IRAM

Results

Installation of water points and securitisation of transhumant corridors:
In Chad the results of these projects were 363 wells rehabilitated, 194 new wells constructed, 191 ponds deepened and 1,350 km of corridors demarcated.

In Niger about a hundred water points were involved (69 new wells and 33 rehabilitated, and over 2,000 km of demarcation of pasture areas and transhumant corridors, to be completed by the end of 2010).

These achievements have a direct impact on the reduction of the hardships of mobility for pastoralists and an increase in comfort for their families; they also enable the living conditions of the herds to be improved.

Pacification of the social conditions of transhumance:
The joint diagnoses carried out during the various workshops enabled a better understanding between pastoralists and farmers of their respective problems to emerge. The signature of agreements between the different actors also enabled a more robust framework for governance, with equitable access to resources being sustainably assured. "*This facilitation achieved its aims: the mayors, canton chiefs, transhumant herders and associations consider that the transhumance at the end of the rainy season in 2008, for example, was managed in a more conciliatory way than in the past*".

Strengthening of the capacities of the institutional actors to take into account issues of pastoralism and mobility. Strengthening knowledge of the texts of the Code rural by the institutional actors also contributed to a more equitable management of the rights and responsibilities of mobile pastoralists. Definition and implementation of strategies for improvement and management of natural resources at communal and inter-communal levels are also major advances for this type of project in Niger.

Next steps

The **sustainability of the infrastructural** improvements is still unknown because maintenance of the installations is currently the responsibility of the user organisations. There still needs to be a consideration of the fiscal instruments capable of financing the upkeep and re-financing of these pastoral infrastructural works, to facilitate the setting up of regional funds for the purpose.

A strengthening of **exchanges on gaps between actual practices and legal codes, especially in the field of conflict resolution**, is still needed. There is a plan to establish a system of legal support, whose structure is still to be determined.

Although precautionary measures have been put in place to avoid the risks of environmental degradation in ecosystems subject to risk, a methodology for **measuring the environmental impacts** of these projects has not been devised, despite experiments and research carried out in Chad and Niger.

Lessons learned

The relatively long drawn out approach may play a part in demotivating some of the stakeholders. However it also seems that the slow building of dialogue works in favour of mutual listening over the longer term. This approach was also unavoidable in regions which suffer from acute tensions over land use. The approach led to the conclusion of a number of agreements between different users by way of the emergence of a vision of a common space to be shared, and a better understanding of pastoralists' rights.

The integration of different scales in the approach (micro-local, at the level of each well; local at the commune level; regional, between communes; national or even transnational) is essential in the understanding of the issues of mobility and its implications for land improvement and development.

Taking into account the costs of upkeep and renewal of pastoral wells (repairs and reconstruction) and of processes such as conflict resolution, should enable the outcomes of these projects to be sustainable in the long term. This raises issues in the domain of local and regional taxation, which currently functions largely in the form of levies extracted by local governments and the State with no return in the form of pastoral development. Mechanisms for the financing of pastoral wells need to be defined and elaborated, in order to guarantee the durability of investments in securitising pastoral mobility.

Our analysis

1. Vulnerability is conceptualised as more than a question of climate change: market prices, conflicts over land, abuse of authority by the forces of order, governance issues etc.
2. There was no specific work done on climate change, although the perceptions and observations of the herders - of the worsening of some vulnerabilities and of their ways of coping with these - were part of the assessment. Climatic scenarios were not used, although it is acknowledged that climate change is bound to accentuate the variability of pastoral resources. The sustainability of the demarcated transhumant corridors and the installations could be called into question with regard to the potential impacts of climate change.
3. The whole set of institutional actors was mobilised in the course of the project. A screening of the different stakeholders was therefore done in advance.
4. The risks and vulnerabilities of herders were analysed in a multi-sectoral manner, in particular through an assessment of current pastoral resources (carried out by an ecologist and a researcher on pastoralism). Response to the issues identified was also cross-cutting, in that questions of tenure, natural resource management, diversification of the pastoral economy, water supply etc. were all addressed.
5. Different spatial, institutional and administrative scales of operation were articulated in these projects. The overarching scale which determined the approach is that of pastoral mobility; this goes beyond the administrative framework of regions in Niger because of the geographical extension of mobility systems across regions and States. Pastoral mobility is conceived of on the scale of the pastoral resources exploited, on parameters of longitude and latitude which go beyond administrative and national borders.
6. The method is one resembling research-action. So it extends over a long time period (something which was complained about by some of the stakeholders), with large budgets and huge areas of land, in order to be able to involve all the actors concerned. Its replicability is therefore limited in the sense that it was designed specifically for these areas.
7. Innovation consists mainly in the bringing together of all the institutional actors involved and not remaining within an "infrastructure" approach.
8. Essential in the project (see above).
9. Two researchers (an ecologist and a pastoralism specialist) played a key role in determining zones subject to environmental risk. There was also an agreement with two research organisations for the external monitoring of the project, although the results of the methodology used were not very convincing.
10. The differentiated vulnerability of herders to risks of insecurity of resources for their livestock is dealt with in a general manner. There was no specific work done on the issue of gender, although some pastoral leaders were women and were able to put forward their specific points of view during workshops. But indirectly the idea of the vulnerability of those most exposed to risk was treated through the increase in the frequency of pastoral water points and the reaffirmation of the rights of free access to public pastoral wells.
11. Development priorities and national adaptation strategies were taken into account where they were considered pertinent by the project holder. For example the NAPA of Niger (2006) which promotes intensive or so-called "non-conventional" livestock rearing is not considered relevant and so is not included in the analysis. On the other hand, the national rural development strategy is considered much more important, and programmes to securitise pastoral systems are part of this strategy.
    In the same way, in Chad numerous documents exist, such as the Schema Directeur de l'Eau et de l'Assainissement (Framework Plan for Water and Sanitation) which has a section on "pastoral water supply" for the period 2003-2020 (financed by UNDP and held by the Environment and Water Supply Ministry) which IRAM took account of in order to ensure a good fit with national policies. This includes a situation report on pastoral water supply, the legislative and regulatory framework, the system of local actors, equipment and projects, and proposes an action plan.
    Particular attention is given to articulation with development plans of the Départements.
12. This is one of the major successes of the programme, because it managed to mobilise all the institutional actors.
13. There was no approach specifically based on ecosystems, although pastoralism contributes to the conservation of these fragile areas through avoiding over-grazing and maintaining biodiversity. However the precautionary principle in zones subject to risk (of soil degradation in particular) was applied in the sense that nothing was constructed in these zones.
14. An important effort of lesson learning was achieved for each of these projects and was endorsed at various meetings (for example "Acting in Uncertainty" at Montpellier in 2010) and through publications. The project was also the subject of a television report (reportages, France 5). Furthermore, several regional workshops were held to progressively validate the approach with the support of local actors, in a process which has since been integrated into national pastoral water strategies in Niger and Mali.

ENDA: Cotton Programme, Mali

Duration: 2 weeks needed for vulnerability analysis in six locations.

Budget: 18,500,000 FCFA (for vulnerability analysis) or about 2,800 €.

Size of ENDA team: 1 expert for the analysis (and 2 administrative personnel).

Geographical extent: six communes in two regions (Koulikoro and Sikasso).

Population involved: About 7,800 inhabitants in all six pilot locations. The adult population is mostly made up of small farmers (cotton, sorghum, maize, millet, rice, peanuts). The proportion of cotton producers to total number of farmers is not known.

Stakeholders: Oxfam (commissioned the vulnerability analysis as part of its Cotton programme), Malian NGOs (Association des Organisations Professionnelles Paysannes – AOPP, Mouvement biologique malien – MOBIOM, and the Association des Producteurs de Coton en Afrique – APROCA), international NGOs (Enda Energie, Helvetas), Comic Relief (funding agency).

Method used: participatory diagnostic study. No tools or methods specifically oriented towards climate change were used.

Contact: Boubacar Fall (boubafall@yahoo.fr)

References: Exchanges of emails with Boubacar Fall

Evaluation de la vulnerabilité des petits producteurs, Rapport Final, B.Fall Nov 2009

E-bulletin of 23 December 2009, ENDA Energie, Environnement, Développement, "La vulnérabilité des petits producteurs de coton du Mali".

Synthesis of project

Oxfam GB, Oxfam America worked in partnership with international NGOs in Mali and West Africa to draw up the Strategic Cotton Programme. This programme was based on existing initiatives of the key implementing partners who were the AOPP, MOBIOM and APROCA, as well as the international NGOs Helvetas, SNV and Enda.

This collaborative programme "**Renforcement et sécurisation du bien être des Producteurs dans les zones de production cotonnière du Mali et de l'Afrique de l'Ouest**" (Strengthening and securing the livelihoods of producers in the cotton producing zones of Mali and West Africa) began on 1 March 2007 for a period of 5 years in the region of Koulikoro (where a number of communes were already beneficiaries of the strategic cotton programme). The main aim of the programme is to increase and make more secure the incomes and living conditions of 200,000 poor producers, especially women, in the cotton producing zones of Mali, through the adoption of production practices which are better adapted and more sustainable, and through capacity building of producer organisations at local, national and regional levels up to 2012.

Among other activities in this programme, Oxfam implemented a pilot project "**Capacity building of beneficiaries of the cotton programme to adapt to climate change**", which has been in operation since March 2009. This project, funded by Oxfam America for up to $517,300 terminates on 31 December 2011. In its design phase, the project drew on the National Adaptation Plan of Actions (NAPA) of Mali, which defined a series of priority projects in the field of adaptation to climate change.

One of the first of these projects was the "Vulgarisation des variétés améliorées et adaptées aux conditions climatiques des principales cultures vivrières (mil, sorgho, mais et riz)" (Popularisation of improved and adapted varieties appropriate to climatic conditions of the main subsistence crops – millet, sorghum, maize and rice) followed by the " Promotion des activités génératrices de revenus et le développement des mutuelles" (Promotion of income generating activities and development of cooperatives) and " Utilisation des informations météorologiques pour améliorer la production agricole et contribuer à la sécurité alimentaire" (Using meteorological information to improve agricultural production and contribute to food security). These three project ideas form the basis of this pilot project for adaptation to climate change in the strategic cotton programme of Oxfam and its partners who are in charge of implementation.

The pilot project has three specific objectives. These are:

1. Understanding the reasons for vulnerability and the adaptation capacities of small producers.
2. Assisting small farmers in the identification and ranking of their current and future adaptation needs at the level of individual farms and cooperatives.
3. Advising and supporting small farmers to take ownership of pilot measures including those identified as priorities by the NAPA in Mali to increase their resilience to adverse effects of climate change.

Among the different activities of this project, Enda was responsible for identifying vulnerabilities and evaluating adaptation capacities of the producers in the face of climate change. The recommendations emerging from this assessment were to enable Oxfam to situate its action plan in a well-designed framework.

According to the NAPA and the climatic models formulated by the IPCC, climate change in Mali will consist mainly of a shift in the isohyets towards the south of the country, but in particular of a greater variability in rainfall, to the extent that seasons will become less distinct than before. Higher average temperatures and more frequent heat waves are also to be anticipated. However great uncertainty remains as to the local forms these global impacts may take, particularly in the Sahel.

Methodology applied

An Enda mission went to Bamako from 25 April to 3 May 2009 to carry out the evaluation, with an emphasis on the participatory nature of the approach.

The mission was led by Boubacar Fall (Enda), and took place in four phases.
The first was a meeting with the institutional actors and regional farmers' organisations to ensure their involvement in the implementation of the project.

To choose the sites MOBIOM, Helvetas and AOPP were invited to make proposals for potential locations given their experience of the area. About twenty villages were proposed and the list was sent to Oxfam which forwarded it to the National Meteorological Directorate (NMD) and the National Centre for Scientific and Technical Research (NCSTR). The involvement of these institutions was intended not only to ensure the appropriateness of the final choice of villages based on their degree of vulnerability (means of existence strongly exposed to impacts of climate change and variability) but also to ensure that the project was in step with priorities at the national level, according to the evaluation results from the NAPA and the availability of meteorological data. The report refers only briefly to the current state of available scientific knowledge about the evolution of the climate in the study region (there is no bibliography). Six sites were selected in this way: three in the Sikasso region (Faragouaran, Bobi, Guinso) and three others in the Koulikoro region (Zanguéna, Banakoro, Chicoroni). On the other hand there was no question of ensuring the representativity of these villages because there was no intention to extrapolate the conclusions of the diagnostic study to a wider area.

Next a training workshop lasting two days was organised for the outreach workers of the various cooperatives to enable them to clearly understand the problems of climate change and of adaptation in particular. The importance of taking differentiated vulnerability as between female and male cotton producers was also emphasised. During this workshop the questionnaire to be used to carry out the evaluation of vulnerability was also shared, tested and adopted by the various participants who were all active in the field.

Data collection took place in six villages over two weeks, through a questionnaire administered to focus groups organised in each village, bringing together only cotton producers targeted in the Oxfam programme, or via individual interviews. A total of 133 individuals were interviewed in this way.

The questionnaire was composed uniquely of open questions (How was the climate 20 to 30 years ago? What is the climate like today? Have there been any changes? etc.) No special facilitation tools were used (timeline of climatic events, problem tree, mapping etc.) during these conversations. ●

Results

The report of this relatively brief assessment observes that "in global terms, the population has a good perception of the climatic evolution of their area", noting in particular an increased variability in precipitation and a shortening of the wet season. Some producers even asserted that it had changed from 7 to 3 months in duration in some cotton producing zones in recent decades. The risk situation was mapped for each village using a diagram with 4 poles (pockets of drought, high temperatures, progressive decline in rainfall, early cessation of rainy season etc.) The vulnerabilities identified were many: "uncertainty linked to the starting of farming activities, early drying up of ponds and swamps, decline in agricultural production (cotton and cereals), problems of food insecurity, lengthening of the hungry season, abandonment of some crops, unsuitableness of some cereal seed varieties…." whether these were of climatic origin or not. The report makes clear that "in reality, climatic risks […] merely accentuate a situation of insecurity which emerges from the field study and whose causes are related" to underlying vulnerabilities (poor levels of agricultural equipment, lack of water supply infrastructure), poor agricultural practices (such as continuous uninterrupted cultivation of the land over decades) institutional weaknesses (delays in payments to cotton producers by cooperatives) or major trends (population growth affecting the availability of land and natural resources).

However the analysis is very horizontal and the links between these different impacts are not explored. In addition there is no forecast of the consequences of the difficulties detected over the medium term: what is the decline in average productivity due to climatic factors? Do these factors affect the production of cotton more than other crops? Has income from migration increased in these villages because of these climatic constraints?

Finally the analysis is purely local and there is no reference to different territorial scales or sectors which could play a role in the production and distribution of cotton.

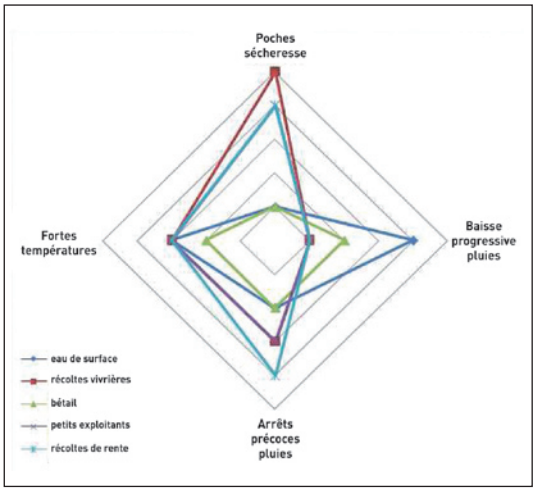


Diagram of vulnerabilities with regards to resources. *Source: ENDA*

Adaptation strategies already being implemented are listed (increased production of organic fertiliser, use of new seed varieties, diversification of agricultural activities, etc.).

The recommendations cover various dimensions. Among these are the strengthening of the productive capital of producers (materials for installing compost pits, carts), literacy training for producers and improvement of laws governing cooperatives, development of less climate-dependent activities (vegetable gardening, shea butter production), agro-forestry, setting up cereal banks and meteorological information and early warning systems, capacity building for better agricultural practices etc.

Next steps

The recommendations made have not so far given rise to the implementation of practical projects. At least there is not sufficient information available to be able to show this.

Lessons learned

There have been no specific lessons drawn from the methodology used.

Our analysis

1. The study lists all the vulnerabilities encountered locally by the producers, whether climatic in origin or not. There appears however to be a lack of ranking of these vulnerabilities by their intensity and by the adaptation strategies developed to mitigate them.

2. This is the priority dimension of the analysis, which was designed to characterise vulnerabilities in the face of climate change. The reference to the Mali NAPA is explicit. In launching this pilot project, the Oxfam cotton programme identified climate change as a key dimension in the vulnerability of Malian cotton producers.

3. The actors met with at the start of the mission are those in contact with the Oxfam Cotton programme. However there is no diagnostic study of commune level actors. The cooperative outreach workers and the cotton producers were the only people consulted locally. It would have been interesting to identify other actors whose activities generate use conflicts over natural resources and to invite them to the focus group meetings.

4. The analysis is sectoral (agriculture) and the approach itself tends to be horizontal: there are few linkages between the different sets of problems.

5. From the point of view of the assessment itself, the village scale seems appropriate (community-based). On the other hand, the small size of the sample chosen in each village to administer the questionnaire seems surprising, considering the total numbers of inhabitants in these 6 villages (we do not know the number of cotton producers per village).

6. Because of its relative simplicity, the method is easily replicable.

7. The method is not particularly innovative: it consists of qualitative research on the perceptions of climate change issues of a group of the population. However the importance of the gender approach in the analysis is notable.

8. One important dimension of the diagnostic study is that each participant was able to express his or her own point of view on the difficulties they encounter. By contrast we could note the exclusion of other social groups (apart from cotton producers) who might have been able to shed light on the systemic nature of the different impacts cited in the study.

9. Emphasis was laid on local knowledge of climate change. Few scientific data were included. The comparison between producers' observations and climate data is not sufficiently exploited.

10. Women producers were included in the focus group discussions. Their specific constraints were well identified. It would however have been useful to map all the social groups in order to complete the analysis: for example, are there cotton producers not attached to cooperatives who might have specific sets of problems?

11. The evaluation locations were chosen because of their inclusion in the priorities of the NAPA. However development priorities and adaptation strategies at other levels are not referred to.

12. Because the assessment forms part of the larger Oxfam project, Enda relied on the institutional partnerships already established. However the evaluation itself did not aim to create a network of actors to draw up an action plan. This dimension is therefore the responsibility of Oxfam alone.

13. Conservation of the environment appears as an adjustment variable in relation to the production needs of the farmers. This dimension is referred to during the evaluation but without becoming a priority.

14. The evaluation was presented during a restitution workshop and in numerous publications. There has been no documentation of lessons learned about the methods used as such, or about how Enda has been able to improve it for use in other areas.

PART 3

Synthesis of Recommendations for the Implementation of Adaptation Projects

What follows is a synthesis of the main recommendations which emerge from the "state of the art" survey, the analysis of existing tools and methods, and the case studies. These recommendations concern the methodology to be employed and the process of formulating the diagnosis, and also the lessons learned about the participatory approach to the assessment of vulnerability.

Assessment of vulnerabilities and adaptation capacities

Adjusting vulnerability assessment to different objectives

The choice of method to use and the time devote to carrying out the assessment depends mainly on the objectives and the depth of the vulnerability assessment required. A vulnerability assessment may take between 6 days (Adaptation Wizard – UKCIP) and almost a year (CBDRM). So it is important to be aware in advance of the time and the budget available before selecting a tool to guide the process of analysis, to avoid having to skip some stages of the analysis.

A "rapid" assessment which does not involve the participation of the communities may be appropriate in cases where a priority for the NGO is to strengthen local capacities; here such a pre-assessment may be supplemented and finalised later through consultations with local people. It may also be useful for an NGO which is aiming to get a better idea of the potential for reducing the vulnerability to climate change of its projects in an area. Furthermore there are some tools which have not been presented in this guide which could prove effective means to this kind of aim (*Climate proofing for development* by the German Development Agency (GIZ), for example) [25].

Integrating the different levels of analysis

These might be the regional, state, area, or local levels, the livelihood basin or the urban quarter: integrating these different levels in the assessment enables both local vulnerabilities to be assessed and also those of other areas which impact on or may impact on the area under study through existing linkages. The same is also true for adaptation capacities.

▶ ***On this topic see Box 3.***

The involvement of the institutions which administer these territorial levels can bring about better consistency between the action plans to be implemented [26]. Involvement in this sense could range from simple collaboration to a fully developed partnership.

Integrating socio-economic forecasting into the assessment

Evaluating the vulnerabilities of a group of people and an area to the future impacts of climate change requires scenarios to be drawn up of the area's socio-economic future: what will it look like in the medium and long term? These scenarios have to combine the future evolution of the climate (which is of course uncertain!) with socio-economic and institutional data.

The UNEP handbook is the only one to prescribe this step. This can be explained by the fact that such a complex socio-economic forecast requires reference points to be established. But it is still important draw out the possible perspectives and dynamics of change that may occur with reference to the main current trends (demographic, resource-related, and in terms of activities and organisations in particular).

▶ ***The GRDR in its area forecasting exercise for the Senegal River basin (Mali, Senegal, Mauritania), proposed to the local actors that issues (climatic or not) and possible futures should be identified and desirable futures discussed.***

25 http://www2.gtz.de/dokumente/bib-2010/gtz2010-0714en-climate-proofing.pdf

26 *Institutions for adaptation, Toward an effective multi-level interplay*, GermanWatch, WWF, 2011.

Ensuring a multi-sectoral analysis by including a range of skills within the teams

Most of the methodological tools presented above are intended for use by those who are not necessarily working in the field of climate or even environment. Including specialists from several different disciplines in the analysis will therefore be necessary to identify cross-cutting issues.

This inclusion can be achieved through the integration of experts (such as climatologists, agronomists, foresters, hydrologists etc.) into the analysis team, through the use of occasional consultancies when specific issues have been identified, or finally through partnerships with research institutes. At the same time, the combination of "specialist" knowledge with field based knowledge is necessary to grasp the realities of particular areas.

Mobilising geographical information [27]

Geographical information is very widely available today. Recently there has been a multiplication of free sources of geographical information. This is a revolution which offers valuable opportunities to NGOs and to local institutions in Southern countries for free access to mathematical area modelling, to satellite images [28], and to geo-referenced data on hydrography, road networks and some socio-economic statistics. Geographical information can support assessments, development activities and monitoring; for example:

– **Visualising transhumance corridors for herders and their potential obstacles.**

▶ ***See the IRAM case study.***

– **Identifying priority action zones by degree of vulnerability of different areas.**

▶ ***This type of aim is particularly appropriate for the evaluation of exposure to risk of extreme climatic events (such as floods).***

– **Evaluating optimal siting of a community shelter in relation to the dispersal pattern of households.**

▶ ***See the Médecins du Monde case study.***

– **Bringing diverse social groups together around a map or a 3D model to highlight and put on the agenda the shared issues in an area.**

▶ ***See the training kits of the Centre technique de coopération agricole et rurale (Technical Centre for Agricultural and Rural Cooperation - CTA) [29].***

– **Monitoring the evolution over time of a natural resource (such as a forest or a glacier) via satellite imagery, etc.**

▶ ***The regional programme for adaptation to rapid retreat of Andean glaciers, in the Care case study, illustrates the benefit, in this case, of having a component of the programme to monitor the glaciers using satellite imagery.***

– **And finally, communicating outcomes effectively to donors.**

27 See for example A. V. Ospina et R. Heeks, *ICTs and Climate Change Adaptation, Enabling innovative strategies,* University of Manchester, UK, Oct. 2011.

28 See chapter 4 of the UNDP guide *Mapping Climate Change Vulnerability and Impact Scenarios, A guidebook for Sub-National Planners*, Nov. 2010, which is an interesting resumé of numerous sources of climatic data and of the ways in which they can be mobilised to assist in decision-making. See also pages 53-57 for the advantages and disadvantages of GIS (geographical information systems) for mapping vulnerabilities.

29 http://pgis-tk-en.cta.int/

Facilitation of participatory workshops

Training in climate change and in tools and methods for implementation, with the aim of good mutual understanding with community members

Continuous training of local people and of the socio-economic and institutional actors is a necessary condition for their effective participation in an adaptation project.

Popularising the concepts to be used is essential in this context and is part of the logic of a permanent and progressive process of capacity building. To take one example, the use of bio-indicators (such as the flowering period of trees, the arrival of migratory birds, the appearance of mosses etc.) can facilitate fruitful discussion during participatory assessments, but it also requires an educational approach to be determined as a priority.

Varying the arrangements for participatory analysis and encouraging "active" methods

This involves "moving the assessment outside" away from the meeting room, and fostering observation and conversation between participants:

- Setting up "life size" scenarios;
- Transect walks;
- Game playing: competitions, videos made by participants, etc.

These techniques enable the facilitator to withdraw to a certain extent, and the participants to take more control of the assessment.

A mixture of different facilitation techniques enables the attention of diverse participant groups to be captured [30].

▶ ***In this respect the toolbox of the EVC guide of the Red Cross gives a good description of the techniques which can be used (Toolkit Sheet 4).***

Fostering peer group exchanges

Peer exchanges enable shared learning to happen, and create linkages which act in favour of mobilisation of the stakeholders and sustainability of the activities. Apart from general assemblies it is recommended that groups or specific organisations should be brought together periodically, even if this is done informally, by organising field visits to different sites. So for example a disaster risk management committee which has just been created might visit another Committee which has been in existence for several years, to encourage conversation about good practice.

30 Some of the interesting initiatives of the transalpine research project AdaptAlp (www.adaptalp.org) funded by the Alpine Space programme can also be taken up and applied in the context of adaptation projects, for example with simple maquettes trèlpis to illustrate the role of forest cover in limiting damage from landslides, or small scale simulations of a flash flood (Biber Berti education programme).

Integrating the private sector into the analysis and into exchange workshops, so that it plays its part in the adaptation strategies to be implemented

Private entrepreneurship in the South has its own specific vulnerabilities with regard to climate change, but it may also be able to take advantage of significant business opportunities which can usefully be exploited for the replication of pilot projects implemented as part of adaptation [31].

Taking the constraints of different social groups in the community into account, so as to ensure that they are included in the analysis

- **Adjust the timing and format** of workshops to the constraints of the specially targeted participants and groups.

- **Take social relationships into account**: when necessary, allow all the social groups to express themselves through holding separate meetings.

Moving from assessment to action plan

Only consider adaptation capacities which can lead to real gains in adaptation strategies

During the analysis of adaptation capacities, it is necessary to take into account intangible processes which may not necessarily be measurable: How are decisions actually made? What is the mode of governance? What relationship does the community have with innovation, experimentation and the exploitation of new opportunities? What is the structure of the institutions? Here it is a matter of going beyond simple observation of what the system **has** which could make it capable of adapting itself, to recognising rather what the system **does** to make it capable of adapting. [32]

31 On this see the stimulating article by Devyani Parameshwar at www.climateprep.org, « *The business of climate change: opportunities in Adaptation and Resilience* » (http://www.climateprep.org/2011/09/12/the-business-of-climate-change-opportunities-in-adaptation-and-resilience/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+ClimatePrep+%28Climate+Prep%29).

32 L. Jones and al., *Towards a characterization of adaptive capacity: a framework for analyzing adaptive capacity at the local level*, ODI, dec. 2010.

ODI suggest an analytical framework for local adaptation capacities based on five main characteristics:

- *Basic assets:* the availability of community assets enabling a system to adapt to changing conditions.
- *Institutions and rights:* existence of an institutional environment which is appropriate and capable of evolving in a way which allows equitable access to basic assets.
- *Knowledge and information:* the system has the capacity to collect, analyse and distribute knowledge and information in a way which supports adaptation.
- *Innovation:* the system creates an environment which is favourable to innovation, experimentation and the exploration of new opportunities.
- *Governance and decision making processes which are flexible and informed by a long-term vision:* the system is capable of anticipating, integrating and responding to change by adapting its governance structure and its planning procedures.

Evaluating and ensuring the sustainability of potential adaptation strategies

This is a recommendation which of course is not valid only for adaptation projects: it is self-evident that infrastructure, equipment and capacity-building activities must bring about lasting change if development is to be sustainable. But climate change is an additional factor which makes this even more necessary, to the extent that its local impacts are uncertain in their nature, their intensity, and also in their timing.

In so-called "no regrets" strategies, this problem is less pressing, because these strategies in any case involve improvement in the living conditions of local people: strengthening local governance to take stronger ownership of climate issues, setting up early warning systems, installing meteorological recording stations, reforestation to reduce the impact of higher rainfall, replanting mangroves to control flooding from the sea, making pastoral movement easier etc. If climate projections are confirmed on the local scale then actions will already have been taken to meet the problem, but if future climate change is very different from what was initially forecast, no time or money will have been lost.

On the other hand there is an essential set of problems contained in the institutional or organisational structure which is chosen to ensure that the strategy is sustainable: Who is to ensure that the infrastructure which is built will be maintained (pastoral wells, artificial glaciers, community shelters, etc)? Who will be responsible for continued funding (here there is an issue for advocacy and for resort to supra-local institutions)? How is this to be done (for example through occasional hiring out of shelters for parties and events outside crisis periods, a system of taxation for the pastoral wells)?

Estimating the additional costs of potential adaptation strategies

A key element in sustainability is the evaluation of the additional costs of potential adaptation strategies. But in fact only the French Ministry for the Environment and the UKCIP Adaptation Wizard toolkits provide for this. An objective estimate of the costs of adaptation actions (even those referred to as "soft" measures [33]) needs to be produced, and this must cover not just capital but also running costs, which are often overlooked.

33 Hammill, A. and Tanner, T., *Harmonizing Climate Risk Management, Adaptation screening and assessment tools for development co-operation*, OECD Environment working papers, n°36, 2011.

Fostering an approach based on the conservation and restoration of ecosystems [34]

Ecosystem-based Adaptation (EBA) integrates ecosystem services and use of biodiversity into the implementation of strategies to enable local people to confront the impacts of climate change [35]. Far from being a "conservationist" vision of adaptation (one which might not prioritise local people's needs as a priority), this approach is highly complementary to a community adaptation approach [36]. It is wrong to think of an EBA approach as one which saves species and conserves biodiversity and ecosystems whereas a community approach supports people. This approach starts from the principle of sustainable management, and conservation and restoration of ecosystems becomes a way of delivering adaptation for local people. In addition, ecosystems which are healthy (forests, humid zones, mangroves, coral reefs, mountain deserts) also have more chance of adapting to these climate changes and of recovering after extreme climatic events and hence of continuing to provide high quality natural system services to local people. Rather than investing in infrastructure, it may often be less costly and more efficient to encourage the health of ecosystems. The example of mangroves is a classic one in this respect: mangroves in good condition provide protection for coastal communities by limiting the impacts of storms and flooding and reducing both salt water intrusion into the land and also erosion - and all this at a much lower cost than would be incurred in the construction of dams and barriers etc.

This integration of ecosystems and biodiversity into the approach has to be part of the analysis both of vulnerabilities (Which are the degraded zones which will have a decisive effect on future difficulties? What are the natural resources which it will become harder to supply because of climate change? etc.), and also of adaptation capacities (What are the current negative practices and the possibilities of reducing the "stress" on ecosystems which is not linked to climate? What sustainable ecosystem management practices can be put in place? Which ecological zones can be restored? etc.) They also form part of the responses to the assessment (the action plans). Of course resilient ecosystems will not be the only response to the impacts of climate change, especially where particularly violent climatic events are involved. In some situations the restoration of ecosystems may even be considered impossible because of the irreversibility of the degradation and the speed of climate change. In other situations engineering solutions may be considered to be more efficient.

There is currently no formalised methodology for EBA. However a number of projects which have already been implemented provide lessons and may serve as inspiration for envisaging chains of impacts integrating ecosystems.

Several countries whose ecosystems undoubtedly play a major role in underlying vulnerabilities (Bangladesh, Haiti, Lesotho, Ethiopia) have based their NAPAs on an ecosystem based approach. Some NGOs such as WWF also base all their adaptation projects on this type of approach.

34 *Ecosystem-based Adaptation, A natural response to climate change*, International Union for Conservation of Nature, 2009.

35 *"Ecosystem-based adaptation is the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change."*, Convention on Biological Diversity's Second Ad-hoc Technical Expert Group on Biodiversity and Climate Change.

36 *Ecosytem-based adaptation: what does it really mean?*, Shaun Martin, ClimatePrep.org, mars 2011

Appendices

List of abbreviations

ADPC: Asian Disaster Preparedness Center

AFD: Agence française de développement / French Development Agency

AOPP: Association des Organisations Professionnelles Paysannes / Farmers' Producer Organisations' Federation

APROCA: Association des producteurs de coton en Afrique / African Cotton Producers' Association

AVSF: Agronomes et vétérinaires sans frontières / Agronomists and Veterinarians Without Borders

CARI: Centre d'actions et de réalisations internationales / Centre for International Actions and Achievements

CBDRM : Community Based Disaster Risk Management

CDKN: Climate Knowledge Development Network

CEDRA: Climate Change and Environmental Degradation Risk and Adaptation Assessment

COP: Conference of the Parties

CRiSTAL: Community Based Risk Screening Tool – Adaptation and Livelihoods

CTA: Centre technique de coopération agricole et rurale / Technical Centre for Agricultural and Rural Cooperation

CVCA: Climate Vulnerability and Capacity Analysis

DFID: UK Department for International Development

DRR: Disaster Risk Reduction

EBA: Ecosystem-Based Adaptation

GDP: Gross Domestic Product

GEF: Global Environment Facility

GERES: Groupe Energies renouvelables, Environnement et Solidarités / Renewable Energy, Environment and Solidarity Group

GIS: Geographical Information Systems

GIZ: German Development Agency

GRDR: Groupe de Recherche et de Réalisations pour le Développement rural

IDS: Institute of Development Studies

IPCC: Intergovernmental Panel on Climate Change

IRAM: Institut de recherches et d'applications des méthodes de développement / Implementation of Development Research and Methods Institute

IRD: Institut de recherche sur le Développement / Institute for Development Research

ISO: International Solidarity Organisations

MDM: Médecins du Monde / Doctors of the World

MOBIOM: Mouvement biologique malien / Malian Organic Movement

NAPA: National Adaptation Plan for Action

NCSTR: National Centre for Scientific and Technical Research

NGO: Nongovernmental organisation

NMD: National Meteorological Directorate

OCDE: Organisation For Economic Cooperation And Development

ODA: Official Development Assistance

ODI: Overseas Development Institute

PDRA: Participatory Disaster Risk Assessment

PPP: Policy, Plan, Programme

PRAA: Adaptation To The Impact Of Rapid Glacier Retreat In The Tropical Andes Project / Proyecto de Adaptacion al Impacto del Retroceso Acelerado de Glaciares en los Andes Tropicales

PVA: Participatory Vulnerability Analysis

RAC-F/CAN-F: Réseau Action Climat France / Climate Action Network France

SCCTF: Special Climate Change Fund

SEE: Strategic Environmental Evaluation

TACC: Territorial Approach to Climate Change

UKCIP: UK Climate Impacts Programme

UNDP: United Nations Development Programme

UNEP: United Nations Environment Programme

UNFCCC: United Nations Framework Convention on Climate Change

UNITAR: United Nations Institute for Training and Research

VCA: Vulnerability and Capacity Assessment

WRI: World Resource Institute

4D Association: Dossiers et débats pour le développement durable Association / Debates and Issues for Sustainable Development

Organisations that have answered the survey

Coordination SUD

Agronomes et Vétérinaires sans frontière
Alofa Tuvalu
Care France
Cari
Croix Rouge
GERES
GRDR
GRET
Helio International
Initiative-Développement
IRAM
Médecins du Monde

Climate and Development Network

ABTN/DDSE
Action communautaire pour le développement intégral (RDC)
AFPAT Tchad
Agrina
AMADE PELCODE
Amis de la Saoura
ANCE Togo
Association des enseignants des Sciences de la vie et de la Terre Maroc
ENDA
Guinée Écologie
Horizon Vert
Jeunes Volontaires pour l'Environnement Côte d'Ivoire
Maudesco
OFEDI
Pesticide Action Network

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