

# Adaptation

## Climate Change Adaptation in Africa



### Evaluating the contribution of climate change adaptation to poverty reduction

CCAA Learning Forum background paper (working document, 21 October 2010)

#### Abstract

This background paper presents the rationale for a CCAA learning forum on the linkages between adaptation and poverty reduction. It attempts to present the current state of knowledge about the nexus between climate change adaptation and poverty reduction, grounded in current methods of evaluating adaptation. Finally, it identifies gaps that the forum will address and the approaches to be used.

Poverty reduction can be used as a lens to evaluate the success of adaptation. Through a poverty lens, we can see vulnerability as the susceptibility of people or groups to becoming poor or poorer as a result of climate change-related stresses or shocks. Poverty is now widely recognised as multidimensional and encompassing deprivations in many aspects in addition to the monetary ones. These other aspects, such as health, knowledge, rights, social linkages, the capacity to achieve and make choices, are now integrated in the concept of Human Development. There is a large overlap and two-way causal relationship between adaptive capacity and development as well as between vulnerability and poverty. Climate change brings additional challenges to development and poverty reduction, while adaptation presents new opportunities to address existing development problems.

Assessing the impact of adaptation initiatives on measures of poverty or vulnerability would involve too many challenges: the causal mechanisms are very complex; there are constraints to having comparable environments where the initiatives do not intervene; and the period in which the CCAA program has been active is too short to provide an adequate base of evidence. Instead, the forum will aim at analysing the actual and potential contributions of adaptation projects relative to different dimensions of poverty by formulating hypotheses about the mechanisms and constraints at play. The forum will collect, through examples provided by projects, evidence that either confirm or invalidate the hypotheses. It will then address questions that remain to be answered and the evaluation methodologies that could be used, while examining the effectiveness of evaluation methods already used by project teams. The results of the forum will be presented in a synthesis paper to which participants will contribute. The present paper serves as background only, and therefore does not present examples from CCAA projects.

## 1. Introduction

The Climate Change Adaptation in Africa (CCAA) program was initiated in 2006. It currently supports 46 research and capacity building projects on diverse themes, most led by African organisations. In March 2010, CCAA initiated a series of learning forums during which supported research teams shared their experience and findings on critical themes related to climate change adaptation, and synthesized key lessons. Our first learning forum explored the use of seasonal forecasts to reduce vulnerability. This second forum, taking place in Dakar, Senegal, October 25-29, 2010, addresses the theme of evaluating the contribution of climate change adaptation to poverty reduction.

As its name implies, this learning forum aims to facilitate shared learning among participating project teams, program management staff, and the agencies that support the program. Through follow up publications, the lessons learned will be shared with a wider audience. This learning will be catalyzed through an evaluative process, reflecting on what the program had set out to achieve when it was created. The CCAA program aims to significantly improve the capacity of African countries to adapt to climate change in ways that benefit the most vulnerable. Its second specific objective is to support adaptation by rural and urban people, particularly the most vulnerable, through action research. Now that many supported projects are well under way, the program wishes to assess if the research capacities that it aimed to strengthen have benefited the most vulnerable, or are likely to benefit them in the future. *But who are the most vulnerable? How can the program and project teams evaluate the benefits of their activities on these people?* The program is not only eager to collect evidence showing benefits but also to better understand what conditions are necessary for these benefits to occur, what mechanisms have proved effective, and what the constraints are.

As there are so many different definitions and ways to conceive of vulnerability, having a focus on poverty reduction can help clarify our understandings of the term. Poverty reduction can serve as a lens, or series of lenses, with which to evaluate the effectiveness of adaptation processes. To ensure that program discussions would contribute effectively to the existing body of knowledge on the interface between climate change adaptation and poverty, CCAA conducted a literature review. Through this review, we have compiled an inventory of relevant definitions of key terms, to ensure a shared basis of understanding for the forum. The review assessed different frameworks and tools that could be useful for project teams and inspired the facilitation methodology developed for the forum. It allowed us to better understand the challenges related to evaluating adaptation processes. Informed by the literature review, this background paper describes the rationale for the theme of the forum, the current state of knowledge on the subject, the gaps found, and how the forum will attempt to address them. The results of the forum will be presented in a synthesis paper and other possible papers participants may choose to author.

## 2. Rationale for the theme of the forum

### **Adaptation as a way to overcome obstacles to development**

African countries are in a process of development which can be metaphorically compared to a journey with many obstacles. One of these obstacles is climate change, which is accelerated by an anthropogenic increase of greenhouse gases in the atmosphere. Significant increases in global average

temperatures have heightened the intensity and frequency of extreme events such as droughts, hurricanes and cyclones, as well as intense rains causing floods. These extreme events produce shocks that negatively impact human activities and the environment on which the activities depend. Global warming is also leading to gradual changes, such as an increase in sea levels, changes in rainfall patterns, and, in much of Africa, a decrease in overall rainfall both in terms of quantity and quality. The impacts of climate change and increased climate variability on human society are varied, but include increased stresses on food production systems, water supplies, ecosystems and human health.

The international response to these threats has focused on two strategies: mitigation, reducing emissions of greenhouse gases that cause global climate change; and adaptation, defined as “initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects” (IPCC, 2007). It is now accepted that adaptation to a changing climate will be necessary, because some impacts of climate change appear to be observed already, and because modifications that have already occurred in the atmosphere’s composition are continuing to warm the global climate. The stakeholders who support adaptation initiatives are interested in knowing if these initiatives are really working, if they are producing the expected benefits. Those who are adapting, with or without external support, need to know if they are going in the right direction. For poor and marginalised Africans, the burning issue is whether they are on the path to a better life for themselves and their children, and if the proper support mechanisms are being put in place to help them face climate-related hazards.

### **A shared interest**

There is presently a series of reflections in the community of scientists and organisations working on climate change about how to evaluate adaptation. Adaptation is not an end in itself, but rather a series of means to ensure a viable future for those affected. *Is adaptation taking society to where it wants to be in the future?* If not planned holistically, adaptation strategies in one economic sector can be detrimental to other sectors. Some adaptation plans, if they do not take into account the needs of the poor and marginalised, can actually worsen the situation for these people. The poor are often more vulnerable to climate-related hazards because they do not have the skills, relationships, rights or access to the resources needed to adapt to changing environmental conditions. Many of the improvements needed to increase their adaptive capacity and reduce their vulnerability are necessary regardless of climate change and are therefore in the realm of development and poverty-reduction initiatives. Adaptation is an additional opportunity to tackle existing development problems. In some cases, successful adaptation processes could even produce development benefits that surpass the losses caused by climate change. On the other hand, it is important to avoid conducting development activities that do not take into account climate change and which could undermine adaptive capacity or contribute to mal-adaptation. For all these reasons, many development agencies have been mainstreaming climate change adaptation into their programs. National governments are also being encouraged to do the same in their poverty reduction strategies. This further justifies the need to reflect on the contribution of adaptation to development and poverty reduction. Managers and stakeholders of adaptation initiatives are those who can most benefit from evaluating adaptation. Not only will it help them to plan and report more easily and use resources more effectively, but it can help them adapt better, by adjusting their activities in function of what they observe. Territorial bodies or organisations in charge of a resource (such as a water basin, a forest reserve or an aquifer) will want to evaluate adaptation over a longer time than that of individual projects or initiatives.

Donors who support adaptation initiatives are also interested in the subject. There is now an operational adaptation fund related to the Kyoto Protocol<sup>1</sup> that will soon be providing funds for developing countries affected by climate change. The Global Environment Fund (GEF) has supported a number of adaptation projects in Africa, managed either by individual countries or by organisations of the United Nations and involving various countries. Least Developing Countries (LDCs) have developed National Adaptation Programmes for Action (NAPAs) and are receiving support from the GEF to implement pilot projects related to them. Like any donor, the GEF conducts evaluations on its projects to evaluate their success. The GEF has been spearheading a reflection on evaluating climate change and development, which led to a conference in Alexandria in May 2008, the publication of a book with papers from that conference (Van den Berg and Feldstein, 2009), and a web-based community of practice since March 2010.

While some advocate that the responsibility for climate change lies with industrialised countries and that supporting adaptation should be an additional commitment to development aid, there is increasing awareness of the need to incorporate adaptation into existing development initiatives as well. Through the 2006 Organisation for Economic Co-operation and Development (OECD) Declaration on Integrating Climate Adaptation into Development Co-operation, member states commit to “work to better integrate climate change adaptation in development planning and assistance, both with their own governments and in activities undertaken with partner countries” (OECD, 2009: 1). Such initiatives include development projects as well as the national poverty reduction strategy papers mentioned earlier. Many development donors who focus on poverty reduction are also now funding adaptation initiatives. With an accountability perspective, these donors are not only interested in demonstrating that adaptation is taking place but are interested in knowing if initiatives are reducing poverty or diminishing the risks of vulnerable groups becoming poorer as a result of climate related stresses and shocks.

### 3. Current state of knowledge on the nexus between climate adaptation and poverty reduction

This section of the paper is divided into three sub-sections: a discussion on terminology, existing frameworks and tools, and challenges in evaluating adaptation.

#### **A discussion on terminology**

To describe the implications of climate change impacts and the effects of adaptation, climate change experts have been using terms that often resonate with poverty and well-being: adaptive capacity, resilience, and vulnerability. While there are variations in their definitions, we review some of those most commonly used in the fields of climate change adaptation, social protection and natural disaster management.

#### **Adaptive capacity**

As mentioned above, adaptation is defined as “initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects” (IPCC 2007: 1). Adaptive capacity, the ability to adapt, is defined as “the whole of capabilities, resources and institutions of a

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<sup>1</sup> The Protocol, which sets emission reduction targets and means to achieve them, has been in vigour since 2005. It expires in 2012, and a follow-up protocol is now the subject of international negotiations.

country or region to implement effective adaptation measures“(IPCC, 2007: 1). This definition can be extended to individuals and communities. Adger et al. (2004: 34) define it as “the ability or capacity of a system to modify or change its characteristics or behaviour so as to cope with existing or anticipated external stresses”. Adaptive capacity is the ability to reduce vulnerability. Adaptation should result in a reduction of vulnerability over time.

### **Vulnerability**

The IPCC (2007 b: 21) introduces vulnerability as the “degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes”. Those working on disaster prevention consider vulnerability to be what determines “whether or not the outcome of a hazard event is a disaster” (Benson, 2002: 1). They represent vulnerability as a multiplicative factor between Hazard and Risk (UNDHA, 1992). In other words, vulnerability is used to express the combination of factors, biophysical and socio-economic, that allow a hazard to cause a feared consequence. In the social protection community, vulnerability is seen as “the exposure to uninsured risk<sup>2</sup> leading to a socially unacceptable level of well-being” (Hoogeveen et al., 2004: 5), or as “the probability or risk today of being in poverty—or falling deeper into poverty—at some point in the future” (Coudouel et al. 2002: 29). Derived from all of these definitions, the working definition of vulnerability used for this forum is *the susceptibility of persons or groups to become poor or poorer as a result of climate change-related stresses or shocks*.

### **Resilience**

Resilience, in ecology, is the ability of an ecosystem to recover its original functions after a disturbance. Applied to human systems, factors that increase resilience might include diversification of assets or agricultural production systems, disaster management systems, insurance schemes, food and money reserves or appropriate infrastructure investments, amongst others. Sometimes, the term resilience is used as an antonym of vulnerability although it does not exactly mean the opposite (Gallopín, 2006). For example, a forest might be vulnerable to fire because it burns down, but it could nonetheless be resilient if it grows back after some years.

### **Poverty**

Poverty most commonly refers to a manifestation of insufficient well-being (Bourguignon and Chakravarty, 2003: 26). Amartya Sen, who developed the Capabilities Approach in the 1980’s, viewed poverty as a state of capability deprivation (Sen, 1985), a lack of capabilities that enable a person to live a life he or she values, encompassing such domains as income, health, education, empowerment, and human rights. This latter approach inspired the creation of the human development index which is widely used today. Indeed, the OECD glossary of statistical terms defines human development as “the process of enlarging people’s choices. Their three essential choices are to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living. Additional choices, highly valued by many people, range from political, economic and social freedom to opportunities for being creative and productive and enjoying personal self-respect and guaranteed human rights.”

There will be as many different definitions of poverty as there are points of view on what is socially acceptable. Each organisation or initiative has its own definition of the term, but there is a general agreement that poverty is multidimensional and is not only related to monetary aspects. For instance,

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<sup>2</sup> Here risk is synonymous with the word hazard as used by the natural disaster prevention community; to minimise confusion, we are using the expression “stresses and shocks” in this paper.

the OECD conceptualizes poverty as the lack of opportunity to a) earn an income and meet material needs; b) maintain health and a basic education; c) speak up for oneself and have rights; and d) maintain a sense of social and cultural affiliation. The international community set the Millennium Development Goals (MDGs) following the United Nations Millennium declaration in 2000. The first of these goals is to reduce extreme poverty and hunger and it sets a series of targets that are mostly related to income and consumption. But many of the other MDGs resonate with the concept of multidimensional poverty as well as capacities. For example, there are goals related to primary education, equality and empowerment of women, health, and environmental sustainability, as well as fair trade (which is included in goal number 8 on a global partnership for development).

### **Sustainable livelihoods**

While it is widely recognised that poverty is multidimensional, a wide variety of measures and indices of poverty are used depending on the application, the scale, and the possibility of obtaining the needed information. Monetary measures such as income levels, consumption, or the number of people living under the set poverty line suit some purposes of comparison. A number of more comprehensive indices exist and are being used to monitor development at the national level, such as the Multidimensional Poverty Index, the Index of Basic Needs Unmet, and the Human Development Index. However, these indices condense the multiple dimensions of poverty into a single index on which a “poverty line” (threshold) is set. Bourguignon and Chakravarty (2003) present an approach for the determination of a poverty line for each of the dimensions of poverty. An approach that is widely used in local initiatives is the Sustainable Livelihoods Approach which examines “various factors and processes which either constrain or enhance poor people’s ability to make a living in an economically, ecologically, and socially sustainable manner” (Krantz, 2001: 5). “A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.” (Chambers and Conway, 1992)

### **Overlaps: adaptation-development and vulnerability-poverty**

There is extensive overlap between adaptation and development as well as between vulnerability and poverty. Brooks et al. (2005) describe an empirical process of determining indicators of vulnerability. They studied the correlation between 46 national level variables, identified as potential vulnerability proxies, with the rate of decadal mortality following extreme events obtained from a database of emergency events. They found the following variables to be correlated with decadal mortality outcome at the 10% significance level, and therefore adopted them as their key indicators of vulnerability:

(1) population with access to sanitation; (2) literacy rates among 15-24-year olds; (3) maternal mortality; (4) literacy rates among those over 15 years old; (5) caloric intake; (6) voice and accountability; (7) civil liberties; (8) political rights; (9) government effectiveness; (10) female to male literacy ratios; and (11) life expectancy at birth.

One notes that these indicators could very well be indicators in a multidimensional analysis of poverty. Indeed, there is a two-way causal relationship between poverty and vulnerability. Those who are most vulnerable are most likely to become poorer as a result of a stress but poverty also can also increase vulnerability. Benson notes that (2002: 1) “At the household level, poverty is the single most important factor determining disaster vulnerability, in part reflecting location of housing (e.g., on floodplains, steep slopes or contaminated land), primary types of occupation, and limited access to financial and other resources.” For example, poor households may lack access to water to irrigate their crops or to

insurance programs, and they may not have an income sufficient to allow making reserves. In the absence of risk-management options, they will most probably not take advantage of opportunities that could be more profitable because they are riskier, such as improved varieties that have better yield but are more sensitive to drought than local varieties. This positive feedback loop contributes to the cycle of poverty. Being vulnerable does not necessarily imply that one is poor today. "Vulnerability does – in contrast to poverty – not only describe a current status of a society, but it contains a predictive feature, i.e. it describes what might happen in the future, if a certain hazard is going to occur." (Makoka and Kaplan, 2005: 12).

Because of the conceptual overlap between vulnerability and poverty, it is difficult to clearly separate adaptation actions from development and poverty reduction efforts. McGray et al. (2007) have described a continuum of approaches between those that are purely developmental and those that are distinctly oriented to confront climate change. On one end of this continuum, approaches that aim at reducing vulnerability overlap almost completely with traditional development practice. They will produce benefits even in the absence of climate change. On the other end, approaches that aim at reducing specific impacts of climate change will produce benefits only if those changes do occur. Between these extremes, a whole range of middle ground approaches occur, and many initiatives combine addressing drivers of vulnerability and impacts of specific shocks and stresses associated with climate change.

### **Some existing frameworks and tools**

In support of its 2006 Declaration on Integrating Climate Adaptation into Development Co-operation, the OECD provided a policy guidance document (OECD, 2009), for which the German development agency GTZ recently developed a training handbook (Frankel-Reed *et al.*, 2009). This guide contains a number of tools that are very helpful in identifying the most problematic hazards, the most vulnerable activities, and different options to choose from. OECD's Development Assistance Committee also developed a policy guidance document on poverty reduction (OECD, 2001). The University of Oslo prepared an analysis on critical measures and key interactions between climate change adaptation and poverty reduction for the Norwegian Agency for Development (NORAD) which uses OECD's definition of poverty (Eriksen *et al.*, 2007). The interface between poverty and vulnerability to climate change is defined as the various processes that lead to failure to secure the four dimensions of a basic living standard in the context of climate change.

One of the mechanisms to integrate climate change adaptation into development initiatives consists of screening existing or planned projects to ensure they do not risk reducing the adaptive capacity of populations. The CRISTAL tool developed by the International Institute for Sustainable Development (IISD) and the International Union for the Conservation of Nature (IUCN) was devised to "climate screen" projects. It asks a series of questions to guide the user in anticipating the combined impacts of climate change and the development activities.

The United Nations Development Program (UNDP) has developed a monitoring and evaluation (M&E) framework for its adaptation portfolio which can also be used at the project level (Frankel Reed *et al.*, 2009). It involves comparing "business as usual" with how the situation evolves when adaptation measures are taken. It addresses aspects such as coverage, impact, sustainability and replicability. The aforementioned article presents examples of indicators for each of these four categories. Among the indicators of impact is the "percent change in stakeholder perceptions of vulnerability (or capacity to adapt) to a recurrence of primary climate change-related threat(s), assessed via qualitative survey."

CARE's Climate Vulnerability and Capacity Analysis (CVCA) Handbook describes an approach and tools for community-based adaptation (Dazé *et al.*, 2009). It includes a list of enabling factors at the national level, the local government/ community level, and at the individual/household level that can be used as a checklist to compare the situation in a given initiative. Changes in these enabling factors can be indicative of adaptation processes. The handbook also presents widely used participatory tools such as hazard mapping, seasonal calendars, historical timelines, Venn diagrams and the vulnerability matrix. The latter rates vulnerability using combinations of livelihood resources (listed in the rows of the matrix) and climate-related hazards (listed in the columns). This helps to identify which resources and hazards are priorities to focus on. However, the particular factors affecting vulnerability must be identified in order to define indicators that can be followed throughout the initiative.

Vincent (2007) presents two indices of adaptive capacity developed for comparison purposes, one at the national level (for comparison between countries) and the other at the household level. These indices are theory based and are calculated in function of factors which are assumed to affect adaptive capacity. The theory behind them benefited from the empirical work of Brooks *et al.* (2005) mentioned earlier. The National Adaptive Capacity Index was published earlier as the Social Vulnerability Index (Adger and Vincent, 2005; Vincent, 2004). It is calculated based on indicators of economic well-being and stability, demographic structure, global interconnectivity, institutional stability and well-being, and natural resource dependence. The Household Adaptive Capacity Index, informed by household surveys, reflects economic well-being and stability (based on market value of livestock assets), demographic structure, interconnectivity in higher level processes, natural resource dependence and housing quality. Although Vincent (2007) underlines the uncertainties that accompany them, they are indices that can be used to target countries or households most in need of adaptation assistance. They could eventually serve comparison purposes over time as well, but it would probably be most useful to track individual components of these indices rather than the compounded index itself.

Many authors see vulnerability as a result of a deficiency in assets. Thus many approaches to evaluating vulnerability are asset-based. The Assets Vulnerability Framework described by Moser (1998) identifies five dimensions of vulnerability: labour; human capital; housing and infrastructure; household relations; and social capital. The approach not only aims to quantify resources but also the capabilities that households have to use their resources to reduce their vulnerability. The Sustainable Livelihoods Approach, which works with five types of capital similar to the latter approach (financial, environmental, human, social and physical), is often used by community-based projects to characterise vulnerability.

The CCAA program has been very interested in the topic of evaluating adaptation since its launch in 2006. We use monitoring and evaluation (M&E) for accountability purposes and also because M&E can help African organisations and individuals to adapt more effectively to climate change. We follow various M&E processes for the program but also support project teams, with the help of experts in the field of evaluation. Our approach has evolved in the process of organising three training events for project teams on M&E. We first gave support in the use of the Outcome Mapping (OM) approach (Earl *et al.*, 2001), which helps identify outcomes as changes in behaviour, practices and relationships in key "boundary partners" with whom a given initiative interacts. We then provided guidance on integrating OM tools with Results Based Management, particularly within the results chain that links inputs and activities from a project to its goal. We provided training and support in the use of participatory tools that help community and stakeholder groups to analyse hazards, related risks, the factors of vulnerability and coping capacity, and to explore possible options and partnerships with actors outside the research group. Tools to acquire data, such as surveys, testimonials and outcome journals, are also

being used. The evolution of the approach is described in Beaulieu, 2010. A participant's guide for the most recent training workshop with project teams describes tools and training exercises (Ndiaye *et al.*, 2009).

### **Methodological challenges to evaluating adaptation**

One of the ways to tell that adaptation has taken place is to compare the consequences of climate-related stresses over time. There are numerous examples of African communities that suffered great losses during droughts in the 1970s and 1980s but are now able to endure longer droughts with fewer losses. This adaptation results from a number of national initiatives (such as improved early warning systems and food and fodder markets, and increased accessibility) combined with individual adjustments to livelihood practices. Conway and Schipper (2010) describe the situation in Ethiopia, where a Productive Safety Net Program (PSNP) was put in place in the last decade, and where insurance schemes are being considered. Programs are however confronted with attribution issues. It is often difficult, if not impossible, to determine the part of responsibility of a given initiative in the change observed in the population's wellbeing. Attribution analysis requires a comparison of how the situation evolved in the sites of intervention with its evolution in comparable sites where the initiative had no effect. In natural resource management and development these comparable sites are, in most cases, impossible to find or ethically impossible to create. Attribution analysis is also only possible if causal relationships are very simple and external disruptive factors are absent; the latter condition is automatically violated in the occurrence of climate-related shocks and stresses.

Attribution analysis is in many cases impossible, but *is it always necessary?* Many evaluators are addressing attribution though what is called "contribution analysis" (Mayne, 2001 and 2008, Monnier and Barakat 2009) which documents the mechanisms and paths through which an initiative is contributing to different outcomes. There are some cases, however, such as when testing specific adaptation options, where an experimental design is necessary.

For an initiative being implemented in the present which addresses recurrent or future hazards, it might take years before the effects of adaptation can be demonstrated. It is unlikely that the disturbances for which the various actors are preparing will take place during the period of the initiative itself. It may be impossible to demonstrate, through traditional impact assessment approaches, that the consequences of these disturbances have been reduced. Projects aiming at strengthening adaptive capacity for future climate change impacts will therefore need to anticipate future benefits of the adaptation processes that have been put into place if they want to conduct an impact evaluation.

Studying the evolution of vulnerability over time could theoretically help in evaluating adaptation. The study of the evolution of specific drivers of vulnerability is a promising avenue to document adaptation. Many local initiatives use the previously mentioned sustainable livelihoods framework or the CVCA to identify such drivers. It is possible to look at the evolution of specific factors, but those who are tempted to "measure" overall vulnerability or develop vulnerability indices, such as when developing vulnerability maps, are confronted with many challenges. First of all, the term "vulnerability" is used differently in different professional communities. Those working on the prevention of natural disasters consider that vulnerability is what determines if a hazard will produce a disaster (Benson, 2002). They represent vulnerability as a multiplicative factor between Hazard and Risk (UNDHA, 1992). In other words, vulnerability is used to express the combination of factors, biophysical and socio-economic, that allow an event to cause a feared outcome. On the other hand, according to the IPCC (2007) definition mentioned earlier, "vulnerability is a function of the character, magnitude, and rate of climate variation

to which a system is exposed, its *sensitivity*, and its *adaptive capacity*". The fact that vulnerability is said to include the character, magnitude and rate of climate variation to which a system is exposed makes this definition of vulnerability equivalent to the definition of risk used by the natural disaster management community. The difference in language used by the two communities can result in completely different maps of vulnerability for the same country, or in completely different parts of the population identified as the most vulnerable.

Another very important challenge is the quantity of data to acquire. An M&E framework that covers all aspects of an initiative is often impossible to put into practice because it is too labour intensive. It is necessary to choose specific indicators for selected evaluation questions, but it is very difficult to determine, from the start, which evaluation questions will be important to the donor, the implementing organisations and the stakeholders involved. It is often necessary to pin-point specific questions along the way and to shape data acquisition accordingly. Contribution analysis can help actors at all levels to better identify the mechanisms and constraints that require more in-depth evaluation.

#### 4. Addressing gaps in current knowledge

From our survey of the literature, and discussions in practice, we have found the following gaps that challenge us in evaluating if the CCAA program is achieving its objective of strengthening the capacities of African countries in ways that benefit the most vulnerable:

- A lack of practical tools and criteria for identifying whether adaptation is happening and/or adaptive capacity has been strengthened;
- Uncertainties about criteria to evaluate the potential contribution of adaptive measures to vulnerability and poverty reduction; and
- Insufficient knowledge of the conditions necessary for successful adaptation, mechanisms that work, and the constraints in different contexts.

The planned learning forum aims therefore to solicit input on the contributions of adaptation to development and poverty reduction from CCAA projects that have worked with poor and marginalised groups. It seeks to:

- Enable selected CCAA project teams to reflect, through discussion about their own experiences, on the contributions of adaptation measures to improving the well-being of the poor;
- Provide concrete examples showing the constraints and mechanisms through which adaptation measures or initiatives can contribute to improving the well-being of the poor; and
- Formulate recommendations on how to best document and evaluate these contributions.

As an evaluation approach, contribution analysis as described by Mayne (2008) and Monnier and Barakat (2009) appears well-suited to the needs of this forum. It proposes to develop what is called a contribution story describing the processes under study, and to collect evidence at key stages of the process. The study by the University of Oslo (Eriksen et al., 2007), which defines the interface between poverty and climate change vulnerability as the processes that undermine the four dimensions of a basic living standard, has also informed the methodology of the forum.

This literature review identified significant overlap between the concepts of adaptive capacity, capabilities, human development and sustainable livelihoods. The contribution to different dimensions of poverty (or human development capabilities) taken individually can serve as a lens to evaluate the effectiveness of adaptation along that dimension. As it is not practically feasible to evaluate poverty as a whole in order to assess the benefit of adaptation in terms of poverty reduction, we intend to address the gaps mentioned earlier by:

- Testing contribution analysis as a means to look at the contributions of climate change adaptation to reducing different dimensions of poverty;
- Identifying common causal relationships and conditions for successful adaptation and their constraints, through examples from projects; and
- Exploring additional tools and methods that have been used, or could be used, to further study the contribution of adaptation to poverty reduction.

The learning forum will undoubtedly also point to useful methods and themes that can be explored in greater depth across the projects and identify further gaps to be addressed by future research.

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