# DESK REVIEW: EVALUATION OF ADAPTATION TO CLIMATE CHANGE FROM A DEVELOPMENT PERSPECTIVE

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# Preface

This report was commissioned by the GEF Evaluation Office (EO) and financed by DFID, as part of the GEF Evaluation Office International Conference on Evaluating Climate Change and Development (Alexandria, May 10th to 13th, 2008).

The aim is to present an overview of approaches relevant to or used for the evaluation of interventions intended to support adaptation to climate change and to identify main gaps in evaluation of adaptation interventions. The report sought answers for the following questions:

- What types of interventions can already be considered for evaluation with an 'adaptation lens'?
- What additional questions should be asked when applying an 'adaptation lens' to evaluate such interventions?
- What indicators of success relating to adaptation have been used in different types of projects and programmes?

The study was commissioned by the GEF Evaluation Office (EO) and supported by DFID. Rob van den Berg, Director of GEF EO initiated the work; David Todd was the Task Manager for GEF EO, and Julia Compton, Deputy Head of the Evaluation Department, was Task Manager for DFID. The IDS team was led by Merylyn McKenzie Hedger, and included Tom Mitchell, Jennifer Leavy, Martin Greeley and Anna Downie. Lisa Horrocks of AEAT also worked with the team.

This report and the associated Technical Supplement are available from the IDS website.
http://www.ids.ac.uk/go/browse-by-subject/climate-change

# Desk review: Evaluation of adaptation to climate change from a development perspective

## FINAL Report

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## List of abbreviations

| | |
|---|---|
| AAU | Assigned Amount Units (equivalent to 1 mt of CO2) |
| CCAI | Climate Change Adaptation Interventions |
| CDM | Clean Development Mechanism |
| COP | Conference of Parties |
| DFID | Department for International Development |
| DRR | Disaster Risk Reduction |
| EU | European Union |
| ETF | Environmental Transformation Fund |
| GDP | Gross Domestic Product |
| GEF | Global Environment Facility |
| GEF EO | Global Environment Facility Evaluation Office |
| HFA | Hyogo Framework for Action |
| IDRC | International Development Research Centre |
| IPCC | Intergovernmental Panel on Climate Change |
| NAPAs | National Action Plans for Adaptation |
| LDCs | Least Developed Countries |
| LEG | Least Developed Country Expert Group |
| MDGs | Millennium Development Goals |
| M&E | Monitoring and Evaluation |
| NGOs | Non-Governmental Organisations |
| ODA | Official Development Assistance |
| OM | Outcome Mapping |
| PRSPs | Poverty Reduction Strategy Papers |
| SCCF | Special Climate Change Fund |
| SIDS | Small Island Developing States |
| SWAp(s) | Sector Wide Approach (es) |
| UNDP | United Nations Development Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| UKCIP | UK Climate Impacts Programme |
| WRI | World Resources Institute |

## Executive Summary

This desk review assesses the current state of evaluation of climate change adaptation interventions (CCAI) and identifies next stages. It finds that the evaluation of CCAI raises considerable challenges. No single intervention will deliver climate change adaptation. CCAI are diverse, cutting across sectors and scales. They are often funded from an international level and need to deliver outcomes down to the household level. They need to enable unknown changes to be tackled over the next decades and are delivered though a variety of institutional delivery mechanisms. There are known barriers and constraints to their delivery.

Not surprisingly therefore, climate change adaptation is in a ferment of activity. Development agencies are scaling up delivery of interventions. High-level political consideration is being given to significantly increasing financial flows and the relationship of CCAI with the whole development effort is being examined. A number of development agencies are also starting to factor evaluation methods into their approaches and there are synergies with the Disaster Risk Reduction community. There is a real need now for the climate change adaptation industry to engage with the professionals working in evaluation who have developed frameworks and methods for systematic assessment. Efforts should be made to build a consensus about what is successful adaptation and ways to measure it, so that there is a clearer framework for evaluation of interventions intended to deliver it. We have proposed a framework to demonstrate the multi-scaled nature of the challenge.

**Why are evaluations of climate change adaptation interventions needed and what are the main issues?**

Few evaluations of projects formally categorised as climate change adaptation interventions (CCAI) have yet been undertaken. Delivery of the Bali Action Plan to achieve a post-2012 deal within the UN Framework Convention on Climate Change (UNFCCC) requires a scaling up of investment. Some development agencies are starting to evaluate their climate change adaptation interventions and there is a new interest in adaptation metrics. Therefore, this is an opportune time to assess emerging efforts, to identify the key issues for further attention, and to see where consensus should be built.

There is as yet no agreement about how far the global community will go to stabilise greenhouse gas emissions, or how that might be achieved, and therefore how much adaptation to climate change will ultimately be necessary. Because of the causes of climate change, the key drivers for action and resources are likely to be resolved with reference to the international context. However, adaptation is delivered within local contexts and matters ultimately at the household level from a development perspective. There is therefore a need to develop integrated frameworks for the evaluation of CCAI from international, through to national and community levels.

CCAI are rested within an area of considerable theoretical ferment about how to define adaptation and whether adaptation is really primarily about the enhancement of adaptive capacity. Moreover, there are some politically contested areas about mainstreaming and the provision of additional resources for climate change outside ODA. In terms of

implementation, many CCAI at the local level are often part of the standard development portfolio. We need to be able to evaluate adaptation to climate change and also measures which increase resilience to current climate variability within a broader development perspective. This can mean that climate change provides a longer-term perspective for development efforts, which opens up the possibility of new and different strategies.

There are few databases of CCAI and they are all incomplete. However, from literature reviews it is known that adaptation measures that consider climate change are being undertaken by a range of public and private actors through policies, investments in infrastructure and technologies and behavioural change. It is possible to identify 11 distinct adaptation strategies including: changing natural resource management practices; promoting planning and policy changes; improving infrastructure and empowering people. These diverse activities take place at different scales; international, national, programmatic, project, community and local levels, and across many sectors, currently agriculture and water notably, but also health and poverty reduction.

**How does evaluation of climate change adaptation fit into the broader development agenda?**

In many ways, the changing context and trends in evaluation in international development can support and integrate the needs for CCAI evaluation. There is a move to larger scale, sector-wide thematic country level and synthesis evaluations. A more coherent approach has been stimulated with support of the main drivers for change to deliver the UN Millennium Development Goals (MDGs). There is a greater interest in ensuring country-led poverty reduction processes become the focus of evaluation effort and greater engagement in developing country partners.

Evaluations are likely to be sited in three approaches, depending on how they have been originated:

- Those which examine development projects, which are merely re-labelled as climate change adaptation. In this case there is already sound management of investment and effort has always had monitoring and evaluation mechanisms built in from the outset, in some case within logical frameworks of projects. Development agencies and funders have mechanisms for evaluating long-standing areas of intervention. These are likely to be local level direct interventions.

- Programmes and projects where climate change is being mainstreamed into them.

- Interventions which have been framed at the outset as addressing climate change.

**What is the current status of evaluating CCAI?**

Very few evaluations of CCAI have been undertaken. Whilst many projects are participatory and demand driven, monitoring and evaluation has been designed post-hoc and not embedded in the project. The review of the GEF database shows that methods used so far in the evaluation of methodologies for CCAI could be improved and

strengthened with a greater focus on the critical features of what makes successful climate change interventions. The key modifications that are needed to evaluate CCAI include:

- Time frames: mechanisms to provide ongoing feedback on impacts beyond the lifespan of the project; and Institutional memory - Information storage and retrieval systems
- Methods: Participatory evaluation - 360°
- Impact indicators developed in partnership with beneficiaries
- The establishment of baseline scenarios and development of the capacity to monitor change over long timescales, retain the information and provide it in usable formats at the right time.

There is also a need for clear and effective feedback mechanisms from local through national, regional and international levels, from household to project to programme. Lack of consensus at a global level on adaptation has already been indicated. This situation is likely to extend downwards to national differences, between Ministries, within civil society groups, across programme administration, and across scales. This will further complicate the evaluation of CCAI. To avoid conflict, there is a need to choose methods and indicators carefully, and to aim for transparency in reporting their use and outcomes. Methodologies such as outcome mapping, work in an integrally participatory way.

**What next?**

The main message is that efforts should be made to build a consensus about what is successful adaptation, so that there is a clearer framework for evaluation of interventions intended to deliver it. We propose that the five main factors which can determine successful adaptation are: effectiveness – achieving objectives; flexibility – to account for the uncertainty of climate change and the evolving knowledge base; equity – across sectors; regions and societies; efficiency – to address agreed acceptable levels of risk; and sustainability – the wider implications of adaptation.

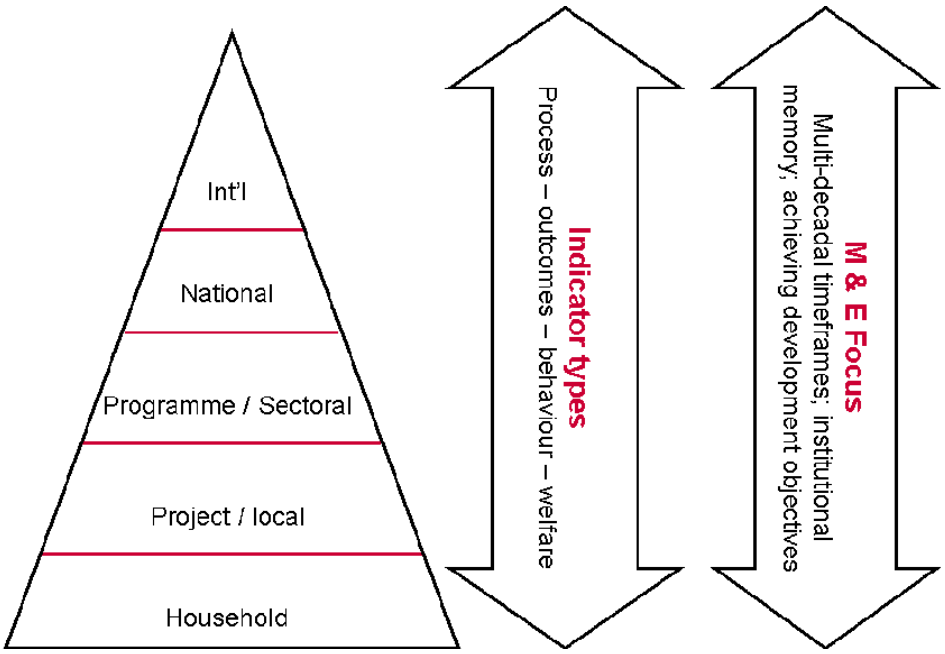
With the move in evaluation to larger scale, sector-wide thematic country level and synthesis evaluations, it will be important to promote integration. Rather than fostering an explosion of evaluations of the multiplicity of interventions which can be labelled as CCAI, greater efforts is required in ensuring adaptation rests within Poverty Reduction Strategy Papers (PRSPs) at the outset with consequent integration of National Adaptation Programmes of Action (NAPAs). In addition, it is vital that sectoral plans, particularly water and agriculture, have climate change fully integrated within them. So the key will be to devise indicators which can measure progress in knowledge generation, its assimilation and application and flexible institutions at all scales. We tentatively identified some potential trade-offs between short-term and long-term actions in relation to ecosystem resilience and also between different social groups with CCAI which should be examined in more detail.

Some large development agencies are already developing approaches to evaluation with methodologies, and indicators for process and outcomes being established. Coherence and coordination could be investigated also incorporating Disaster Risk Reduction (DRR). Both climate change and DRR are structured and developing separately in terms of institutional frameworks at international, national and local levels.

DRR and adaptation to climate change have many similarities. There are great opportunities for synergies rather than duplication, and these should be sought.

Adaptation evaluations must be integrated with existing evaluation frameworks to avoid issue fatigue on the ground. Commonly used indicator frameworks for vulnerability and sustainable livelihoods analysis can provide a considerable amount of data that is compatible with climate change adaptation, which require no more than 're-packaging' to fit an adaptation context. This is particularly important given that many development agencies and practitioners are fatigued by yet another new issue appearing as a fad to those with long standing experience. Accommodating CCAI within existing evaluation frameworks, reducing additional work, is vital.

Due to the diversity of CCAI, across the continuum and across all scales (project, programme, national, international, systemic) a variety of monitoring and evaluation tools could be used to cope with the complexities and the specific context in which the tools are being used. Where CCAI closely match development projects, this is already happening. We have proposed a pyramid of indicators which might provide a framework to measure the accumulation and culmination of effort at local, national and global levels. We have also indicated where different methods of evaluation might fit in. This is advanced to stimulate further discussions to devise common approaches before diverse routes are established.




Climate change practitioners are used to dealing with tools with which to develop analysis and policy. It is therefore suggested that an Evaluation and Monitoring Tool be developed within the ambit of the Nairobi Work Programme of the UNFCCC and with the involvement of groups such as the Least Developed Country Expert Group (LEG). This could build on critical features identified in this paper and the work of UNDP and IDRC, and in the DRR community.

# 1. Overview of report

This report is intended to provide an assessment of the state of the art and identify main gaps in evaluation of climate change adaptation interventions (CCAI). There are two distinct communities for whom it might be of interest: evaluation professionals and adaptation policy analysts. The main aim here is to inform the evaluation community about adaptation, rather than to explain evaluation to adaptation analysts. Material in the Annexes may inform both communities[1]. A draft report was presented at Evaluating Climate Change Conference in Alexandria in May 2008.

A review of the evaluation of CCAI can be considered as:

- **Timely**: we all urgently need to learn as efforts on adaptation are scaled up. As the number of CCAI expands, project developers are increasingly incorporating monitoring and evaluation within their programmes. Evaluation provides a systematic assessment to frame achievement of aims and objectives, effectiveness, impact and sustainability.

- **Premature**: in some respects adaptation policy analysts might consider this report to be premature because so few CCAI have been completed and evaluation is usually ex post. Most evaluations completed to date have been limited, without significant stakeholder engagement, and often process focused. However, long-established evaluation methods can overcome these problems.

- **Challenging**: several challenges can be identified. Emerging scientific understanding and increasing concern about the damage that climate change could do to economic development and global security are already stimulating increased overseas development assistance in this area, and innovative financing mechanisms are being explored. However there is no consensus on where adaptation 'should' be going; nor agreement about what constitutes adaptation and adaptive capacity; and what might be the 'successful' long term achievement of development objectives that are sensitive to climate change. Furthermore critical climate change impacts are still uncertain so CCAI need to work to moving targets. And finally, CCAI are multi-sectoral, and multi- scale.

The Terms of Reference asked for:

a) A collation of key approaches and findings from research on climate change adaptation which may be incorporated into the development of effective approaches to the evaluation of climate adaptation interventions.

b) Identification of relevant material from development agency reports and evaluations of climate change adaptation, drawing on the GEF Evaluation Office (EO) database of evaluations.

c) Preparation of a paper on elements of effective approaches and methods to evaluation.

[1] The GEF Evaluation office also issued a report on evaluation of its own programmes as this work was being undertaken. *Elements for an M and E Framework for Climate Change Adaptation projects*. March 27 2008

Various questions and outputs were also indicated in the Terms of Reference. Some of these questions and outputs were predicated upon a significant body of evaluations of CCAI having been completed. In fact this is not the case. It is recognised that many development projects which tackle the vulnerability of poor groups to climate variability, will increase resilience to climate change. These have been subject to many evaluations and lessons can be drawn. We make reference to some of this material, for example from livelihoods evaluations, where it is pertinent. But in themselves they will not be sufficient to deal with the unexpected changes likely to be associated with climate change and changes in the 'normal' conditions over time. Quite what is the additional component which changes a development project from one which handles climate variability to one which covers the full range of climate risk, including climate change, is not yet agreed. Bringing evaluation perspectives in at this point heightens the need for this to be clarified so decisions can be made about what we are trying to evaluate. This report does point for more work on this critical area. However we do not address this issue exhaustively here. What we do here is try to explain the particular features of the climate change adaptation agenda, which need to be considered as approaches to evaluation are structured.

In order to present an accessible and coherent report, within the available resources, and in relation to the limited material available, we have structured the report around the following three questions:

1. Why are evaluations of climate change adaptation interventions needed? (section two). This section explores the contours of framing of climate change adaptation interventions, and lays the groundwork for a synthesised framing for evaluation[2].

2. What are the key issues involved in evaluating climate change adaptation interventions? (section three). This section of the report looks at what is climate change adaptation, and how this relates to development interventions[3].

3. What approaches to and methods for adaptation evaluation have or could be used at different levels? (section four). This core section examines what indicators of success relating to adaptation have been used in different kinds of projects and programmes and starts to identify what additional questions should be asked when applying an 'adaptation lens' to evaluate development interventions[4].

Section four also presents an integrated framework for the evaluation of adaptation at multi-scales, together with possible methods and indicators which could be used, drawing on the analysis in section three. It also identifies what next stage work should be undertaken[5]. Further information on knowledge sharing and the development of indices is set out in a separate Technical Supplement.

[2] *Scope item 3 e in TOR*
[3] *Scope item 3 a in TOR*
[4] *Scope item 3 b, c d*
[5] *Scope item 3 e in TOR*

## 2. Why are evaluations of climate change adaptation interventions needed?

It is timely to start considering how climate change adaption interventions are evaluated for four reasons:

- Increases in funding
- Gathering political momentum
- Evolving approaches to evaluation of development assistance
- Increasing understanding of adaptation and its relationship with development

### 2.1 Increases in funding for adaptation

We need to consider how evaluation approaches and resources can deal appropriately with adaptation interventions. Global efforts on adaptation are likely to be significantly scaled up with considerable additional funds from ODA, innovatory finance such as the Adaptation Fund, ear-marking of emissions trading auctioning revenues, and increased flows from private foundations. The funding of adaptation, scale, and modes of delivery has been a critical area for discussion within the negotiations surrounding the UNFCCC and is likely to continue to be so, within the Bali Action Plan and the run-up to the 2009 Copenhagen COP. As these developments take place it will be vital to ensure that evaluation is built in from the outset so funds are spent equitably, efficiently, and effectively in ways that will provide flexibility and are sustainable within development efforts. We need to learn from what we have done so far.

#### 2.1.1 Current funding of adaptation activities

The UNFCCC and the Kyoto Protocol require Annex I countries ('developed countries') to provide financial resources exclusively to 'developing countries'. The financial mechanism for the UNFCCC has been the Global Environment Facility (GEF), the preferred institution of the developed countries. The largest share of GEF managed funds are available for adaptation, including Piloting an Operational Approach for Adaptation (SPA) of the GEF Trust Fund, the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF). Since 2005, the GEF has provided $US 110 million for adaptation[6] . In the SCCF, as of October 2007, $59 million had been pledged for adaptation[7]; In the LDCF had $163 pledged as of October 2007, about $9.4 million has been allocated to NAPA preparation and $28.5 million committed to only eight NAPA priority implementation projects[8]. Nearly all of the completed NAPAs have priority actions identified, which in September 2007 totalled US$ 352 million for the first 20 (including US$ 74.4 million for Bangladesh)[9]. Most of the funding comes from EU Member States, principally Denmark, Germany, Sweden and the UK.

Several of the EU Member States also have their own bilateral programmes for adaptation, such as Spain, Germany, and the UK, which also partners with IDRC in Canada. The UK is partnering with the World Bank through its Environmental

[6] GEF Global Environment Facility (2007) GEF Financing Adaptation Action
[7] Valencia, I. D. Monitoring and Evaluation of GEF adaptation to climate change projects. Draft prepared for the GEF Evaluation office November 24, 2007.
[8] ibid
[9] UNFCCC (2007) Least Developed Countries Expert Group (LEG) Stocktaking Meeting on the preparation and implementation of National Adaptation Programmes of Action (NAPAs) 3-4 September 2007, Bangkok, Thailand, Input by the LEG

Transformation Fund (ETF) to support the Climate Investment Funds. The EU also recently announced the formation of the Global Climate Change Alliance. It will combine dialogue and funding (grants) to provide grant assistance for the 'poor developing countries most vulnerable to climate change, in particular the LDCs and SIDS'[10]. Funding will come from development aid. The route and source of funding mean that the investments on adaptation will be closely aligned with broader development effort through budget support and Sector Wide Approaches (SWAps)[11].

Even when adding all the available adaptation financing together from all sources, the total is still well short of what may eventually be needed. Innovative funding mechanisms, outside ODA are being developed. The Adaptation Fund, an additional funding mechanism, generates financing for adaptation through a two per cent levy on the sale of carbon emissions reductions credits gendered by projects under the Clean Development Mechanism (CDM). Financial resources within the Adaptation Fund will depend on the number of emissions credits issued and their price. However, assuming annual sales of 300-450 million and a market price for carbon of US$24, the Adaptation Fund would receive US$ 80-300 million per year for the period 2008-12, even with a high level of demand it is not expected to exceed US$ 1.5 billion per year[12]. The World Bank has estimated that by 2012, the Adaptation Fund revenues will between US$100-500 million, depending on trade volumes and prices.

Other innovative funding mechanisms have also been suggested to help meet the scale of the challenges[13].

- Extend the 2% levy placed on the CDM to cover the wider emissions market in the short-term (Joint implementation and emissions trading)
- Apply a tax on emission-intensive activity, such as aviation and shipping (ideally global)
- Apply a tax on 'AAUs' from industrialised countries
- Apply a worldwide carbon tax of $2/tCO2 on all fossil fuel emissions, with an exemption established by CO2 emissions per capita
- Apply bi- and multilateral Carbon Auction Levy Funding
- A compulsory financial payment towards the Adaptation Fund, based on ability to pay, i.e. GDP per capita, and responsibility for pollution for industrialised countries.

In addition a number of private companies (e.g. HSBC) and foundations (Rockefeller Foundation, Gates Foundation) are beginning to provide significant financing for climate change adaptation.

### 2.1.2 Adaptation Funding needs

Evaluating the global cost of adapting to climate change is very difficult to estimate due to the heterogeneity and embedded character of the costs and investments. A report prepared for the UNFCCC Secretariat suggests that for non-Annex I Parties US$28-67

[10] CEC Communication from the Commission to the Council and the European Parliament. Building a Global Climate Change Alliance between the European Union and poor developing countries most vulnerable to climate change. COM (2007) 540 final
[11] Hedger, M.M (2008) Support Study for the Establishment of the Global Climate Change Alliance
[12] UNFCCC finance report UNFCCC (2007) Report on Existing and Potential Investment and Financial Flows Relevant to the Development of an Effective and Appropriate International Response to Climate Change, Bonn Finance Report 2007
[13] Schipper at al (2008)

billion will be needed for 2030[14]. For all sectors, additional external funding is likely to be needed for adaptation measures, in particular for sectors and countries that are already highly dependent on external support, for example the health sector in least developed countries or for coastal infrastructure in developing countries that are particularly exposed to sea-level rise. The UNDP Human Development Report (2007) on climate change estimated a cost of US$86 billion per year by 2015 for adaptation alone, around 0.2% of global GDP[15].

NGOs such as Oxfam are insisting that additional finance for adaptation must not come out of aid commitments[16]. They argue that whilst development is essential to enable poor people to adapt successfully, it is still hugely under funded and donors must deliver the 0.7% of GDP in order to eradicate poverty and that adaptation finance cannot be re-branded or diverted from aid commitments and must be reported systematically and transparently.

## 2.2 Political dimension

### 2.2.1 Lack of a global adaptation goal

To reach agreement on a future framework to tackle climate change beyond 2012, the member states of the UN Framework Convention on Climate Change (UNFCCC) recognise that resources to help developing countries adapt to the impacts of climate change must be significantly scaled up (e.g. see Bali Action Plan).

For the next two decades a global temperature increase of about 0.2°C per decade is expected, with projections varying depending on the particular emissions scenario[17]. The Intergovernmental Panel on Climate Change (IPCC) has identified that high levels of temperature change would significantly increase risks to many climate sensitive systems, including food supply, water resources, ecosystems and health; systems upon which poor people heavily rely. Accordingly, adapting to climate change is necessary for the short and longer terms as a way of avoiding the worst impacts of warming that would occur even at the IPCC's lowest stabilisation scenarios. Many impacts can be reduced, delayed or avoided by mitigation. Whilst the IPCC has identified that neither adaptation nor mitigation alone can avoid all climate change impacts, these two responses complement each other and together can significantly reduce the risks of climate change.

The scientific framing has been agreed by the international community. But what it has not yet decided is quite how much mitigation will be undertaken, and quite how much adaptation will be needed. Consequently, at a global level, current investment in adaptation can be viewed as tentative and incremental, and is not framed within an

[14] UNFCCC finance report UNFCCC (2007) Report on Existing and Potential Investment and Financial Flows Relevant to the Development of an Effective and Appropriate International Response to Climate Change, Bonn
[15] UNDP (2007) Human Development Report 2007/2008 Fighting climate change: human solidarity in a divided world, New York: UNDP.
[16] OXFAM INTERNATIONAL. (2007). Adapting to Climate Change: What's Needed in Poor Countries, and Who Should Pay. Oxfam Briefing Paper 104. Oxfam International Secretariat. Oxford, UK. 47 pp.47
[17] IPCC Climate Change 2007, Synthesis Report

overall idea of what success might be, or goals and targets. It is possible that a future global agreement might include goals for adaptation and indicators/ metrics to measure progress on adaptation[18].

### 2.2.2 Bali Action Plan and the Adaptation Fund

Enhanced action on adaptation is a foundation block of the Bali Action Plan. The approved text refers to urgent implementation of adaptation actions through a range of actions, the most relevant here being: financial needs assessments; capacity building and response strategies; integration of adaptation into sectoral and national planning. Specific reference is also made to DRR strategies. This action is predicated on enhanced action on technology transfer to support action on adaptation; and enhanced action on the provision of financial resources and investment to support action on adaptation. Included within the package agreed in Bali was the management and structure of the Adaptation Fund.

### 2.2.3 Current players and debates around adaptation funding

It needs to be noted from this discussion of finance and some political context that the evaluation of the effectiveness of adaptation funding interventions could be a contested process in relation to some types of intervention, in view of the current players and the relationship to current debates about the level and control of funding.

Whilst all parties have accepted there is a need to scale-up efforts significantly, there is no agreement about how that is to be achieved. Developing countries want funding of CCAI to be additional to development funding and not about 'mainstreaming'. Developed countries have made it clear that the UNFCCC focuses only on climate change, rather than current climate variability. However, as donors of official development assistance (ODA), they fund development interventions which address the vulnerabilities of poor countries and poor groups to weather and extreme events, the latter within the rapidly developing disaster risk reduction (DRR) paradigm. Furthermore, it is clear that from a technical perspective improving resilience to current climate variability is often regarded as providing a sound foundation for dealing with climate change, Current efforts on droughts, floods and improving livelihood strategies is being re-branded as climate change adaptation.

There have been concerns about the effectiveness of current delivery mechanisms, and the control of funds, which have been exposed in some detail within the debates around the structure, and functioning of the Adaptation Fund. It is not appropriate for this report to rehearse these here. The significance of this issue is that there will be multiple stakeholder viewpoints around the effectiveness of interventions which means that evaluation should be structured in a transparent way, at all levels. It may be appropriate to use some of the adaptation methodologies, which can support transparency, and this will be discussed later in the report.

## 2.3 Current perspectives on evaluation

A third reason for the need for evaluations of adaptation interventions is so that these can be factored into evolving approaches for evaluation of aid effectiveness.

[18] See E ,Levina (2007) Adaptation to climate change: international agreements for local needs. OECD.

### 2.3.1 Evolving approaches on evaluation

Sound management of investment and effort has always had monitoring and evaluation mechanisms built in from the outset, in some cases within logical frameworks of projects. Development agencies and funders have mechanisms for evaluating long-standing areas of intervention, and recent moves into evaluating climate change adaptation interventions. It would seem that this is therefore an opportune time to assess emerging effort and the key issues for further attention, and to see where consensus should be built.

Since the adoption by the OECD Development Assistance Committee of a set of principles for evaluating aid in 1991, the literature on evaluation of development effectiveness has become substantial with most of the major agencies having specialised departments and evaluation manuals.
The DFID evaluation manual[19] confirms that in the context of international development, evaluations have two main objectives:

- **Lesson learning**: to help development partners learn from experience through discovering whether particular development interventions have worked or not, and through understanding why they have been relatively successful or unsuccessful in particular contexts; and
- **Accountability**: to account for the use of resources to funders, such as the funding agencies themselves, the parliaments and taxpayers who vote, their funds and the beneficiaries in whose name the funds are raised and used.

There are many different types of evaluations, depending on when they take place, the processes used and where they focus (for example, DFID evaluations by subject are listed in the Annex, Table A1). However, despite the commitment to lesson learning and accountability, the 'evaluation industry' faces challenges. Learning about impact is a public good but the incentives for any one agency to foster such learning are weak. With increasing volumes of international development assistance and commitment to development goals in the form of the MDGs and other internationally agreed development targets there is now renewed pressure to improve the rigour of evaluation and to incorporate lessons effectively. At the same time, the development of new aid instruments – notably buying in to PRSPs through direct budget support - has opened fresh challenges in assessing aid impact. Following high-level meetings in Rome (2003), Marrakech (2004), and Paris (2005) a set of principles to improve the harmonisation of development assistance and alignment with national development objectives have been adopted by the 56 leading aid agencies which has increased concerns with the quality of the evidence base on what works and what does not. Evaluation is increasingly been recognised as a critical need which requires stronger collective commitment and the use of innovative institutional partnership arrangements to share the burden of providing rigorous evaluative evidence of significant common interest. This is an important perspective for climate change adaptation professionals.

### 2.3.2 Key evaluation methods

[19] DFID (2005) "Guidance on Evaluation and Review for DFID Staff", Evaluation Department, DFID, July 2005

All the key tools, methods and approaches which have been devised for assessing development effectiveness have a role to play in assessing climate change adaptation interventions. Table A2 in the Annex provides a concise overview of evaluation methods.

One key area where there is a significant background from a development perspective is on livelihoods evaluation. There exists a wide range of Monitoring and Evaluation tools used and developed for contexts of sustainable livelihoods and poverty reduction. Livelihoods M&E is characterised by its focus on three main areas of interest: process, outcomes *and* impacts. Livelihoods M&E tools vary in terms of how much weight they lend each of these foci – some concentrate on developing indicators of achievement of material goals or outcomes, others are concerned with processes and (for example in the case of outcome mapping) behavioural changes as outcomes, while others still step away from (quantitative) indicators and instead explore qualitatively 'stories' about changes (for example, 'most significant change' approach).[20]

### 2.3.3 Disseminating evaluation for knowledge sharing and learning

Sharing learning from evaluation is essential in the evolving and relatively new field of climate change adaptation. Therefore evaluation plans will need to include communication strategies, which identify the outcomes we are seeking to achieve and the target audiences for our dissemination. However, a communications strategy for evaluation should also recognise that results from evaluation, especially those with a development perspective, are rarely clear-cut, and are likely to be context specific. Knowledge is not a neutral commodity, which can easily be picked up and applied elsewhere. Communication processes should be based not on a linear sender-receiver model, but on a more networked, multi-way communications model, building shared understandings throughout the evaluation process. As the GEF Evaluation Office highlights: "*Evaluation reports should be subject to a dynamic dissemination strategy tailored to the audience of that specific report*."[21]

The stakeholders in the project being evaluated will be a key target audience for an evaluation communications strategy. The process of being involved in the evaluation itself can lead more directly to change as individuals and groups learn by interpreting, understanding and making sense of their own experiences (collectively)[22].

For evaluation learning to be of relevance to audiences outside of the project's stakeholders, we need to understand how our target audiences search for, access and use information. These issues are discussed in more detail in the Technical Supplement[23].

## 2.4 Increasing understanding of adaptation

[20] Livelihoods Connect is a learning platform for poverty reduction through creating sustainable livelihoods. Here one can find links to various sources on M&E for livelihoods and poverty reduction: Main page:http://www.livelihoods.org/info/info_toolbox.html
[21] GEF Evaluation Office (2006) *The GEF Monitoring and Evaluation Policy*
[22] Watts, J. (2005) *Learning oriented evaluation: a tool for promoting institutional learning and programme improvement* Institutional Learning and Change Initiative (ILAC) Brief 3.
[23] Anna Downie: (2008) Transparency, Dissemination and Knowledge Sharing and Advice to GEF on setting up an online portal to communicate climate change adaptation evaluations. Technical Supplement to this report

The fourth reason why it is timely to start is because understanding of adaptation and its relationship with development is significantly increasing.

A recent *"Assessment of adaptation practices, options, constraints and capacity"* was undertaken within the IPCC Fourth Assessment Report. Several key points can be extracted on the characteristics, problems, constraints and barriers to adaptation, which are relevant to the evaluation of what might be successful adaptation[24].

- Adaptation to climate change is already taking place but on a limited basis.
- Whilst societies have a long history of adapting to the impacts of weather and climate through a range of practices, climate change poses novel risks often outside the range of experience.
- Often planned adaptation initiatives are also not undertaken as stand-alone measures, but embedded within broader sectoral initiatives such as water resource planning, coastal defence and disaster management planning.
- Adaptive capacity is uneven across and within societies. The capacity to adapt is dynamic and influenced by economic and natural resources, social networks, entitlements, institutions, and governance, human resources and technology.
- There are substantial limits and barriers to adaptation including the inability of natural systems to adapt to the rate and magnitude of climate change, as well as technological, financial, cognitive and behavioural, and social and cultural constraints. There are also significant knowledge gaps for adaptation as well as impediments to flows of knowledge and information relevant for adaptation decisions.

The point about adaptation often being embedded within broader sectoral initiatives needs further exploration as it is affects how evaluation is approached.

Given the considerable shortfall between the costs of adapting to climate change and the amount of financing available for CCAI, it is crucial that normal development programming and official development assistance (ODA) help to promote adaptation to climate change rather than exacerbating vulnerability. However, there is as yet no technical or political consensus about the relationship between climate change adaptation and what is 'climate proofing', or 'mainstreaming' of climate change in relation to development. This issue is critical when the matter of evaluating climate change adaptation is under review.

From experiences of trying to implement climate change adaptation in the field, it is clear that the mainstreaming, or integration, of adaptation means embedding climate risk management into ongoing programmes and projects[25]. Most systems are not fully adapted to current climate, so when the issue of climate variability is added in, differentiating clearly what is climate change adaptation and what is not is very complex.

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[24] Drawn from the Executive Summary to chapter 17. Adger, W.N., S. Agrawala, M.M.Q. Mirza, C. Conde, K. O'Brien, J. Pulhin, R. Pulwarty, B. Smit and K. Takahashi, 2007: Assessment of adaptation practices, options, constraints and capacity. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,* M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 717-743

[25] Mitchell, T. and Tanner, T. (2007), Embedding climate change adaptation in development processes. IDS In Focus Issue 02 Climate Change Adaptation November 2007.

Recent analysis by the World Resources Institute has demonstrated that in practice it is difficult to distinguish between development and climate change adaptation. This is because development assistance which is addressing areas affected by climate variability can be re-labelled as providing adaptation to climate change. It suggests that there is a continuum of adaptation actions (see Figure 1), from those driven by addressing vulnerability funded by the mainstream of ODA (such as drought management) to those which are more explicitly about confronting climate change impacts (such as reducing the risks of glacial lake outburst floods).

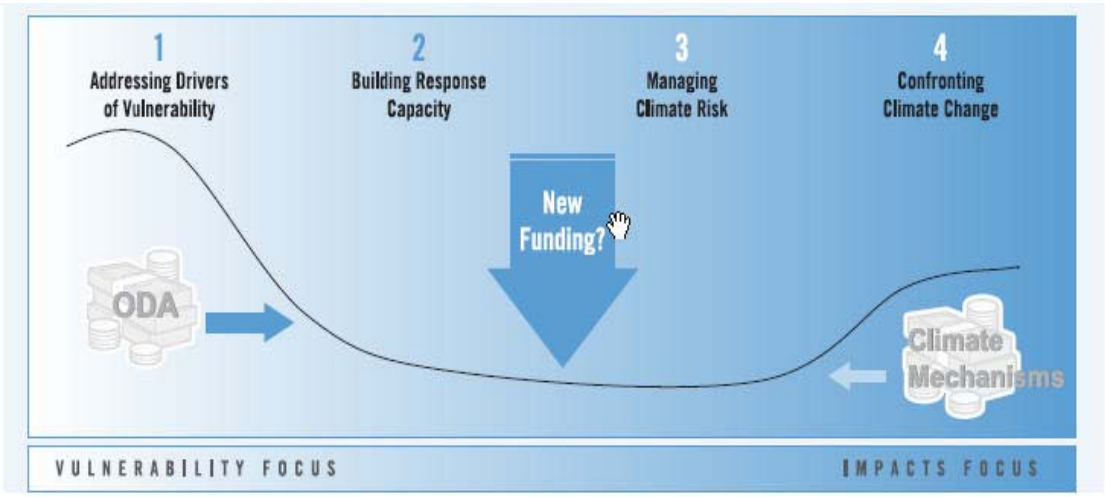


*Figure 1: Adaptation/Development Continuum McGray, Hammill, Bradley (2007)*

| **Development/Adaptation Relationship** | **Types of Adaptation Activity** |
|---|---|
| *1. Addressing the drivers of vulnerability* | At the development end of the spectrum, activities reduce poverty and other shortages of capability. There is very little attention to 'impacts' but the interventions help to buffer households against climate shocks e.g., through building livelihoods, providing HIV/AIDS and gender support. |
| *2. Building Response Capacity* | Activities focus on building robust systems for problem solving and overlap with institutional capacity building and research to boost knowledge. Activities could include community support groups, mapping vulnerabilities and climate regions, weather monitoring and building governance and institutional capacity. |
| *3. Managing climate risk* | Climate information is incorporated into decision-making to reduce the negative effects on resources and livelihoods. Often the effects of climate hazards are not easily distinguishable from the existing range of climate variability. Activities could include early warning systems, disaster-response planning and preparedness and engineering solutions for physical infrastructure to withstand the climate e.g. flood defences. |
| *4. Confronting climate* | Activities focus on addressing impacts targeting risks that |

| | |
|---|---|
| *change* | are clearly outside existing climate variability and with little link to risk from anything other than anthropogenic climate change. Examples include relocating communities in response to sea level rise or not building on flood plain that is at regular risk of flooding when flood defences are no longer appropriate. |

*Figure 2: Types of Adaptation Supported by ODA and International Climate Funding Mechanisms. McGray, Hammill and Bradley (2007)*

For the purposes of evaluation, and although the survey was not comprehensive, WRI make some relevant conclusions from their review[26].

- Sometimes adaptation is being viewed as a means to achieve a development objective, while other times development provides a means to achieve an adaptation objective. It will be increasingly difficult to distinguish adaptation from development.

- A significant area of overlap between adaptation and development is methodological. Rarely do adaptation efforts entail activities not found in the development 'toolbox' such as raising awareness, community participation, improving the knowledge base, communications and facilitating dialogue between local to national and cross-sectoral actors. Those uniquely 'adaptive' elements are those involved in defining problems, selecting strategies and setting priorities – not implementing solutions.

This makes evaluation of CCAI more complex. Should all development effort be regarded as climate change adaptation? Whilst it is known that developed countries have more capacity than developing countries to cope with climate change, climate change clearly adds a different dimension to development effort. Most significantly, there will be a new and distinct funding stream for this which is already generating communities which have a vested interest in this separation of effort. In addition it has been recognised that current development portfolios need to be made 'climate proof', so this suggests it will be important to try to clarify what the extra effort involves before evaluations of climate change adaptation interventions can be undertaken.

## 2.5 Summary of key points

Evaluation of climate change adaptation interventions will need to be framed in a global political and financing framework so that achievement of even the most local interventions can be considered in that framework. There are a number of contested areas about the derivation and governance of adaptation funds. This is likely to mean that evaluation will need to be transparent.

It seems likely at this stage that there are three situations in which evaluations of CCAI will be carried out, depending on the origin of the adaptation element:

[26] WRI (2008) McGray, H., Bradley, R. and Hammill, A. *Weathering the Storm: Options for Framing Adaptation and Development*. WRI: Washington DC. http://pdf.wri.org/weathering_the_storm.pdf

- Those which examine development projects, which are merely re-labelled as climate change adaptation. In this case there is already sound management of investment, and effort has always had monitoring and evaluation mechanisms built in from the outset, in some case within logical frameworks of projects. Development agencies and funders have mechanisms for evaluating long-standing areas of intervention. These are likely to be local level direct interventions.

- Programmes and projects where climate change is being mainstreamed into them.

- Interventions which have been framed at the outset as addressing climate change.

In both the latter cases, the specific adaptation interventions are likely to be about constructing institutional frameworks for assessment, developing capacity, and the process dimensions of CCAI.

In all cases it would seem that this is therefore an opportune time to assess emerging effort, the key issues for further attention, and to see where consensus should be built. Many of the evaluation techniques and approaches currently being used are relevant for CCAI. The following sections will examine particular features of adaptation and what evaluation methods and indicators could be developed.

# 3. Key issues involved in evaluating CCAI

This section identifies and reviews the key issues involved in evaluating CCAI. It first examines the nature of climate change adaptation and its relationship to the concept of adaptive capacity. It then explores what the particular features are of CCAI.

## 3.1 What is climate change adaptation?

### 3.1.1 Different definitions of adaptation

A crucial starting point in the evaluation of adaptation to climate change is to define the term 'adaptation' and then clarify what might constitute 'good' or 'successful' adaptation. Adaptation has been understood to mean slightly different things by different organisations, and studies that have attempted to review adaptation in practice[27] have confronted challenges over the classification of activities that result in unplanned adaptation or 'adaptation by accident'.

An OECD report[28] drew together definitions for key terms related to climate change adaptation. It discussed definitions of adaptation from the IPCC, UNFCCC Secretariat, the United Nations Development Programme (UNDP) and the UK Climate Impacts Programme (UKCIP), and found that these four definitions differed from one another in several ways (see Figure 3). They used different words to describe what adaptation is, including: 'adjustment', 'practical steps', 'process' and 'outcome', all of which can be interpreted differently by various stakeholders. 'Process' is an open-ended term lacking time or subject references. Expectations from adaptation as an 'outcome' might be much higher than expectations from it as a 'process'. Evaluation of achieved results would vary accordingly.

These seemingly small differences might create different expectations from different stakeholders. Some stakeholders (e.g., community-based adaptation practitioners) use a more technical interpretation of the term, while others (e.g. adaptation policymakers) use a broader definition and emphasise the institutional/policy side of adaptation. These varied interpretations mean different approaches to evaluation would be required.

**Definitions of adaptation**

***Adaptation*** *- Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effect, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation* (IPCC TAR, 2001)

***Adaptation*** *– 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…* (Website of the UNFCCC Secretariat)

***Adaptation*** *- Is a process by which strategies to moderate, cope with and take advantage of the*

[27] e.g., Tompkins, E.L., Boyd, E., Nicholson-Cole, S.A., Weatherhead, K., Arnell, N.W. & Adger, W.N. (2005) Linking Adaptation Research and Practice, A report submitted to Defra as part of the Climate Change Impacts and Adaptation: Cross Regional Research Programme (GA01077)

[28] Levina, E. & Tirpak, D. (2006) Adaptation to Climate Change: Key Terms, COM/ENV/EPOC/IEA/SLT(2006)1 (Paris; OECD)

*consequences of climatic events are enhanced, developed, and implemented*. (UNDP, 2005)

***Adaptation*** *- The process or outcome of a process that leads to a reduction in harm or risk of harm, or realisation of benefits associated with climate variability and climate change.* (UK Climate Impacts Programme, UKCIP, 2003)

*Figure 3: Four ways of defining 'adaptation' (Levina and Tirpak, OECD 2006)*

If adaptation is understood as a decision process, rather than a specific action or a series of one-off decisions, then tools, including evaluation tools, are needed not merely to inform or justify single decisions, but to assist decision-makers and those who have a stake in the outcomes of their decisions. If adaptation is understood as an outcome (for example, of climate change resilient development) then evaluations would logically need to focus on the long term effectiveness of development decisions in the face of the changed climate. This is a critical distinction invariably recognised by commentators but ascribed different terms for example, process oriented adaptation versus result oriented adaptation [29], or action linked to outcomes versus social learning [30]. Each type requires different indicators for measurement.

Brooks and Frankel-Reed (2008) suggest that adaptation is not an outcome in itself but a diverse suite of ongoing processes that enable the achievement of development objectives under changing conditions, with the following critical indicators:

- institutional capacity development for managing climate change risks;
- integration of climate change risks into sensitive policies at the sectoral or national scales;
- piloting adaptation practices and measures at various scales; and
- implementing information management systems for climate change decision support.

### 3.1.2 Adaptation and adaptive capacity

One of the critical issues arises in connection with the term 'adaptive capacity', which is used widely with reference to adaptation in the context of development. Does adaptation lead to increased adaptive capacity? Alternatively, does increased adaptive capacity increase your ability to adapt? Does adaptive capacity indicate the possible limit of adaptation? It seems that most authors and practitioners use the term 'adaptive capacity' as a characteristic of a system and its ability to adjust to climate change on its own. Thus, adaptation will increase this ability.

Studies on how to measure adaptive capacity are in their infancy and have not reached consensus[31]. Taking one example, Yohe (2001) suggests the following determinants for adaptive capacity:

[29] E. Levina (2007) Adaptation to climate change: international agreements for local needs. OECD.
[30] See Summary of Jochen Hinkel's presentation in Report of Expert Consultation on Adaptation Metrics IGES, Tokyo 17-18 April 2008. www.iges.or.jp/en/cp/activity20.html , accessed 09-09-08,
[31] See for example, Adger, W. N., Arnell, N. W. & Tompkins, E. L., (2005a) Successful Adaptation to Climate Change Across Scales, Global Environmental Change 15, pp.77-86
Benzie, M. (2007) Avoiding Mal-Adaptation to Climate Change: the role of Strategic Environmental Assessment, Cost-Benefit Analysis and Social Learning, unpublished MSc thesis, London School of Economics.
Horrocks, L., Mayhew, J., Hunt, A., Downing, T., Butterfield, R. & Watkiss, P. (2005) Objective Setting for Climate Change Adaptation Policy, AEA Technology Environment with Stockholm Environment Institute and Metro-economica for Defra

- The range of available technological options for adaptation;
- The availability of resources and their distribution across the population;
- The structure of critical institutions, the derivative allocation of decision-making authority, and the decision criteria that would be employed;
- The stock of human capital, including education and personal security;
- The stock of social capital, including the definition of property rights;
- The system's access to risk-spreading processes, e.g., insurance;
- The ability of decision makers to manage information, the processes by which these decision-makers determine which information is credible and the credibility of the decision-makers, themselves, and
- The public's perceived attribution of the source of stress and the significance of exposure to its local manifestations.

Gathering data on these determinants and then measuring change in them is extremely challenging, particular in developing country contexts. One approach which factors in these aspects from the outset is the International Development Research Centre (IDRC) 'Outcome Mapping' approach to evaluating climate change adaptation[32] (see section four).

In order to measure adaptation at a national and organisational level, some work in the UK has differentiated between outcomes and process (see Appendix 1), building from a typology (UKCIP) that distinguishes between two adaptation processes along a spectrum:

- 'Building adaptive capacity' involves creating the information and conditions (regulatory, institutional, managerial) that are needed before adaptation actions can be undertaken.

- **'**Delivering adaptation actions' involves taking actions that will help to reduce vulnerability to climate risks, or to exploit opportunities. These may be major capital investments.

However, while both UNDP and IDRC have stressed process dimensions in their evaluation frameworks on adaptation programme, IDRC refers explicitly to process activities being 'outcomes'. This seems to be the main story in developing country situations at community level, as most work has been on building adaptive capacity rather than installing new infrastructure.

### 3.1.3 Type of adaptation

Adaptation strategies contain a wide variety of interventions, reflecting its multi-faceted nature. One typology is included below which excludes consideration of scale, and also

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Levina, E. and D. Tirpak (2006) Adaptation to Climate Change, Key Terms OECD/IEA COM/ENV/EPOC/IEA/SLT(2006)1. May 2006.
Watkiss, P. (2006) Adaptation Policy: Developing Indicators, presentation to ECCP II Working Group II: Impacts and Adaptation, 27th June 2005
Yohe, G. and R. S. J. Tol. 2001: Indicators for social and economic coping capacity: Moving toward a working definition of adaptive capacity, Global Environmental Change 12: 25-40

[32] IDRC (2008) CCAA's approach to using monitoring and evaluation to strengthen climate adaptive capacity. N Beaulieu, F Denton, V Orindi, S. Carter and S. Anderson. Paper for the International Workshop on Evaluating Climate Change and Development Alexandria May 10-13th 2008.

encompasses both process type activities, in relation to building adaptive capacity and also direct interventions which deliver adaptation actions, such as physical infrastructure. Some adaptation programmes may cover several of these elements.

| Adaptation Strategy | Description |
|---|---|
| Changing Natural Resource Management Practices | Emphasises new or different natural resource management practices (e.g. for managing water, land, protected areas, fisheries) as adaptation strategies. |
| Building Institutions | Creates new or strengthens existing institutions (e.g. establishing committees, identifying mechanisms for sharing information across institutional boundaries, training staff responsible for policy development). |
| Launching Planning Processes | Sets in motion a specific process for adaptation planning (e.g. developing a disaster preparedness plan, convening stakeholders around vulnerability assessment findings). |
| Raising Awareness | Raises stakeholder awareness of climate change, specific climate impacts, adaptation strategies, or the environment in general. |
| Promoting Technology Change | Promotes implementation or development of a technology new to the location (e.g. irrigation technology, communications technology). |
| Establishing Monitoring/Early Warning Systems | Emphasises the importance of creating, implementing, and/or maintaining monitoring and/or early warning systems. |
| Changing Agricultural Practices | Focuses on new or different agricultural practices as adaptation strategies. |
| Empowering People | Emphasises literacy, gender empowerment, or the creation of income generation opportunities as a basis for adaptation. |
| Promoting Policy Change | Promotes establishing a new policy or adjusting an existing policy. |
| Improving Infrastructure | Focuses on creating or improving built infrastructure (e.g. roads, sea walls, irrigation systems). |
| Providing Social Protection | Creates, modifies and promotes insurance, credit, asset transfers and safety nets. |
| Other Strategies | Adaptation in disaster relief, eradication of climate-related diseases, assisted migration schemes etc. |

*Figure 4: Typology of Adaptation strategies modified from McGray, Hammill and Bradley (2007)*
*Developed from Burton et al etc.*

### 3.1.4 What is successful adaptation?

There is a lack of consensus about what constitutes *successful* adaptation, starting at the global level and having rippling effects downwards. Ultimately, successful adaptation will be seen on multi-decadal timeframes based on the achievement of development objectives sensitive to a changing climate. However, the assessment of such long-term achievements would require monitoring and evaluation to extend over periods much longer than with those associated with project and programme lifetimes.

OECD's Development Assistance Committee has agreed a standard set of international criteria to guide all evaluations of development assistance. These are: relevance, effectiveness, efficiency, impact and sustainability. We propose that a modified set of these criteria will help to define successful adaptation for evaluation purposes. Figure 5 sets out the five criteria of ***Effectiveness***: Achieving objectives; ***Flexibility:*** How far can we adapt? ***Equity***: Inequality dimensions to adaptation; ***Efficiency:*** Cost-effectiveness; and, ***Sustainability***: The wider implications of adaptation***.***

Frameworks for evaluating the success of climate change adaptation must recognise that CCAI occur at all scales, forcing reflection on what constitutes success at each level. Each of the following scales is relevant for developing adaptation evaluations:

- Globally and system-wide (e.g. effectiveness of global markets for risk transfer; adaptation in global commodity markets)
- Global finance delivery mechanisms (e.g. effectiveness of GEF adaptation funds or the Adaptation Fund in promoting adaptation)
- National scales (e.g. efficacy of legislative and institutional arrangements)
- Across adaptation policies and programmes (e.g. implementation framework for NAPAs or programme-wide mechanisms like DFID/IDRC's Climate Change Adaptation in Africa programme)
- At the community-based project level (e.g. effectiveness of adaptation interventions on household vulnerability reduction)

Criteria for successful adaptation, like the ones set out above, will probably need to be tailored to reflect the challenges of evaluating adaptation at different scales.

As an example, it is reasonably clear how consumer preference and government regulation leads to private investment in climate change mitigation measures. There are also opportunities for 'regulatory' incentives on adaptation, where there is a high likelihood of specific patterns of climate change. In some sectors, e.g. housing in areas of high hurricane risk, insurance markets may drive such change. In addition, public awareness of specific risks will drive market-based adaptation response. Adaptation is not then restricted to projects or programmes but is a function of governments using climate change science, media interest and public pressure for designing incentives, regulations and markets driving technological change in both processes and outputs of production. Sensible evaluation is then a formidable challenge for these systemic responses as the scale is of a different order to projects and programmes labelled 'adaptation'. Evaluating successful adaptation at this scale may have to be pragmatic in the way it applies the five success criteria set out in Figure 5, placing emphasis on where data and evaluation techniques allow for greatest progress. However, it seems prudent to claim that evaluations of adaptation at all scales should include elements of **efficiency**, **flexibility**, **equality, effectiveness** and **sustainability**.

| Measure | Description |
|---|---|
| **Effectiveness: Achieving objectives** | An effective adaptation intervention will achieve its stated objectives, be these to reduce vulnerability or risk, increase adaptive capacity, or achieve an enhanced level of protection. Evaluation against this criterion should therefore be relatively straightforward, providing that measurable objectives have been stated and clearly defined at the outset. Whilst effectiveness relates to adaptation outcomes, it also relates to the adaptation process, including capacity building, information exchange and social learning. Complications arise when evaluations are extended to examine the impact of CCAI on poverty, as care must be taken that the achievement of adaptation objectives does not have a detrimental affect on level of poverty nor a negative longer-term impact on vulnerability. Therefore, all adaptation evaluations should include measures of the overall development impact the intervention has in addition to any evaluation of how well it has achieved the objectives.<br><br>There is potential for conflict between funders and beneficiaries, and within different groups of beneficiaries which need to be addressed at the outset. |
| **Flexibility: How far can we adapt?** | Climate change is uncertain, due partly to an incomplete understanding of climate science, and partly to the fact that climate change will impact upon a future world. The large uncertainty around climate change means that it is likely we will either do too much, or too little, adaptation. One response to this is to plan for the 'worst case scenario'. However, there are disadvantages to this approach, not least because it is extremely expensive, and spending more money on adaptation (especially in relation to potential benefits in the far future) reduces resources available for pressing development needs now. Instead, there is a growing recognition that adaptation should seek to avoid large up-front sunk costs, and focus instead on building capacity to improve current climate resilience, and on 'no regret' and 'win-win' interventions, allowing for better decisions downstream. Successful adaptation therefore has to be flexible, not least because of the potential range of climate changes projected under different emissions scenarios. |
| **Equity: Inequality dimensions to adaptation** | Adaptation aims to reduce vulnerability to climate change shocks and stresses. However, vulnerability also depends on socio-economic factors, which implies that any given adaptation may reduce vulnerability inconsistently across groups. Adaptation can reinforce existing inequalities, or it could be designed in such a way as to protect especially vulnerable groups. With respect to equity and vulnerability, it is possible to consider:<br>• Inequalities between sectors, e.g. ecosystems are particularly vulnerable to climate change because of low capacity to adapt.<br>• Inequalities between regions, e.g. greater impacts from climate change in small island states compared to developed countries;<br>• Inequalities within societies, e.g. cementing the voicelessness of excluded groups, or gender inequalities in access to education or healthcare, lowering adaptive capacity.<br><br>In some situations these interact. For example recent analyses in Africa, Asia and Latin America, for example, show that marginalised, primary resource-dependent livelihood groups are particularly vulnerable to climate change impacts if their natural resource base is severely stressed or degraded by overuse or if their governance systems are not capable of responding effectively[33]<br><br>Adaptation interventions that are inequitable will undermine the potential for welfare gains in the future, and are unsustainable. |
| **Efficiency: Cost-effectiveness** | Efficiency or cost-effectiveness is typically used to compare the costs of alternative ways of producing the same or similar results, i.e. to assess the least-cost path to reaching a given target. However, we note that cost-effectiveness only provides comparative information between two or more options. It does not provide an analysis of whether an intervention is justified in itself. Secondly, in relation to adaptation, it is unclear what level of ambition, in terms of reducing risk, to aim towards. This is particularly since |

[33] Leary , N. J and Co-authors 200: For Whom the bells Tolls: Vulnerabilities etc et al, 2006

| | |
|---|---|
| | communities have always dealt with climate variability and there will inevitably be residual risk in future.<br><br>Successful adaptation will involve deciding on acceptable levels of risk (defined to some extent by communities, policy-makers and funders in a collaborative way) as a trade off with the resource invests needed to reduce this risk, and whether this should involve maintaining or improving on current levels of risk and resilience accordingly.<br><br>Financial markets can directly internalise information on climate risks and help transfer adaptation and risk-reduction incentives to communities and individuals. The insurance sector- especially property, health and crop insurance- can efficiently spread risks and help reduce the financial hardships linked to extreme events.<br><br>There are also opportunities for 'regulatory' incentives on *adaptation* where there is a high or very high likelihood of specific patterns of climate change. In some sectors, e.g. housing in areas of high hurricane risk, insurance markets may drive such change. Also, public awareness of specific risks will drive market-based adaptation response. Adaptation is not then restricted to projects or programmes but is a function of governments using climate change science for designing incentives and regulations and markets driving technological change in both processes and outputs of production. |
| **Sustainability: The wider implications of adaptation** | Sustainability of an adaptation is concerned with looking beyond the immediate sphere of the intervention's impact. It considers the longer-term viability of the intervention (e.g. how far are the benefits of an activity likely to continue after donor funding has been used up or withdrawn). It also considers the broader environmental, social and economic impacts of implementing an intervention. Thus there is potential overlap with the criteria of 'Equity' (Social) and 'Efficiency' (Economic), above (those adaptations which are equitable and efficient are more likely to be sustainable).<br><br>The characteristic of sustainability provides an opportunity to prioritise those adaptations, which offer 'win-win' solutions – that is those which offer ancillary benefits (social, economic, environmental) in the context of development, even if the anticipated climate impacts were not to occur.<br><br>Sustainable adaptation is likely to include strong elements of partnership-building, community engagement, education and awareness-raising, as well as focusing on interventions which are 'mainstreamed' into existing development processes and mechanisms, and cutting across key sectors (water management, agriculture, health and education). |

*Figure 5: Factors in determining the success of climate change adaptation*

### 3.1.5 Dealing with maladaptation

Whilst there has been much attention focused on the effectiveness of adaptation in reducing climate change vulnerability, and so potential impacts, it is rarely appreciated that if done badly, (adaptation) interventions can actually exacerbate the effects of climate change. This is termed 'maladaptation'. The IPCC (2001) defines maladaptation as 'any changes in natural or human systems that inadvertently increase vulnerability to climatic stimuli; an adaptation that does not succeed in reducing vulnerability, but increases it instead'. Following on from the discussion of successful adaptation (above) and Downing et al. (2005), a more pragmatic explanation of maladaptation is any kind of action that might involve one or more of the following:

- Inefficient use of resources compared to other options (e.g. unnecessarily displacing development funds away from other concerns)
- Ineffective (e.g. relying on scenarios of future climatic risks that are not subsequently realised and actions that have no other benefits)
- Inequitable reductions in vulnerability (or shifting vulnerability from one group to another)
- Inflexible decisions or investments that may reduce the possibility for future adaptation.

It is vital therefore to consider this issue when indicators are being framed, particularly for short and long-term periods. While not specific to climate change adaptation, evaluations must also consider whether processes of change and pathways to 'success', are likely to exhibit linearity or may indeed suffer periods of stagnation or reversal as a necessary step in the route towards long-term success. Alternately, maladaptation means that initial progress towards success may eventually lead to long-term increases in vulnerability to climate change[34].

## 3.2 Challenges for monitoring and evaluating adaptation

### 3.2.1 The nature of adaptation

The particular issues presented by adaptation for evaluation have been discussed previously in a number of publications[35]. The nature of adaptation makes it particularly challenging for monitoring and evaluation using standard approaches (e.g. via individual, quantitative, outcome-based indicators) because of a range of factors:

- The long timescales associated with climate change, the uncertainties and ranges of the projections, the difficulties with distinguishing the 'noise' of natural climate variability from anthropogenic climate change, and the indirect impacts of climate-driven socio-economic change;
- The moving baseline presented by climate change (evaluation against a backdrop of a changing norm);

[34] Benzie, M. (2007) Avoiding Mal-Adaptation to Climate Change: the role of Strategic Environmental Assessment, Cost-Benefit Analysis and Social Learning, unpublished MSc thesis, London School of Economics.

[35] See, for example, Horrocks, L., Mayhew, J., Hunt, A., Downing, T., Butterfield, R. & Watkiss, P. (2005) Objective Setting for Climate Change Adaptation Policy, AEA Technology Environment with Stockholm Environment Institute and Metro-economica for Defra (unpublished). And, GEF (2008) *Elements for an M and E Framework for Climate Change Adaptation projects*. March 27 2008. Prepared by the GEF Evaluation Office in cooperation with the GEF Adaptation Task Force

- The need for effective adaptation to safeguard against potential discontinuities and surprises resulting from climate variability, and the inherent uncertainty associated with climate projections;
- The mix of hazards and opportunities (e.g., taking advantage of opportunities such as longer growing seasons may increase exposure to hazards such as mid-season drought);
- The multi-sectoral nature of adaptation and the involvement of a large number of agencies and delivery partners at different scales (e.g., each may have different requirements for indicators and their own appropriate monitoring and evaluation systems and information networks);
- The fact that CCAI maybe integrated within sectoral strategies and plans working to other drivers;
- The inherent challenges of defining a long-term vision of the outcome of adaptation, since it constitutes the process of making adjustments to everything else (infrastructure, livelihoods, institutions, etc);
- The absence of agreed definitions of acceptable performance in adaptation, or even agreement over what constitutes success, coupled with the wide range of potential adaptation activities and a need for multi-stakeholder agreement on levels of acceptable risk.

### 3.3 Summary of key points

There is an important distinction between monitoring progress in implementing adaptation interventions in particular, and measuring the effectiveness of adaptation policies and activities in general. The former is likely to be much easier to measure. There is no guarantee, however, that delivery of an intervention will also deliver effective adaptation. (If the intervention is well-researched and part of a wider well-designed adaptation strategy, there is more likelihood of it delivering effective adaptation). The task of measuring the long-term effectiveness of an adaptation policy or programme is, by contrast, far more challenging.

- By its very nature, climate change adaptation presents greater evaluation challenges than other forms of development intervention.
- Evaluators of climate change need to be aware that there are a number of ways of interpreting climate change adaptation and its relationship to the concept of adaptive capacity. But developers of interventions need also to be clear from the outset and in the framing of what exactly they are trying to achieve, as this would improve delivery (and consequent evaluation).
- Whilst there a number ways of considering what successful adaptation is, evaluation should look for the core characteristics of: ***Effectiveness***: Achieving objectives; ***Flexibility:*** How far can we adapt? ***Equity***: Inequality dimensions to adaptation; ***Efficiency:*** Cost-effectiveness; and, ***Sustainability***: The wider implications of adaptation***.***
- It is possible to devise a generic typology of core CCAI, which can then be used for the development of evaluation effort.

# 4. What approaches and methods have been used at different levels?

Whilst monitoring and evaluation is being built into CCAI as they are developed, very few evaluations of climate change adaptation have been completed from which to learn and build from in terms of methodologies or indicators. Although individual development projects which are implemented locally might contribute to climate change adaptation, it will still be necessary to define how and why, so that this can be evaluated. Without this knowledge, refined and distilled, they can only be evaluated as development projects. More conceptual work is needed to define how development projects contribute to climate change adaptation within an overall framework, so that these components can then be evaluated. Careful choice of evaluation methodologies can also help, for example developing a theory of change for the project.

Three relevant sources of information have been located to help construct approaches:

1. The results of a detailed analysis of the evaluations of CCAI in the GEF databases. A full list of indicators used in these cases is included in the Technical Annex - section 2. However, it should be emphasised that there were only 11 cases where evaluations of CCAI had been undertaken, and these all fell into the serendipitous category - interventions were intended to achieve development objectives but produced outcomes that support adaptation.

2. The UNDP and IDRC are currently developing approaches and methods for evaluation of CCAI.

3. A parallel effort on evaluation is being developed in the Disaster Risk and Reduction community, and some of their conceptual framings are relevant[36]

## 4.1 Review of the GEF database

### 4.1.1 Overview of issues in GEF database

Examination of the 11 climate change adaptation evaluation documents contained in the GEF database provides an overview of approaches used for evaluating CCAI, regardless of whether adaptation objectives and outcomes for these projects were stated ex-ante or ex-post.

Where evaluation methods have been described, there appears to be a strong reliance on qualitative methods, mainly interviews with stakeholders at different levels focusing on project staff. Although many projects are participatory and demand-driven in nature this appears not to be so when it comes to monitoring and evaluating projects. While M&E tended to be carried out by independent parties, they are, on the whole, not embedded in projects (the exception to this appears to be Save the Children's DIPECHO

[36] A separate report was prepared by the GEF Evaluation Office during this project which looked at plans for monitoring and evaluation in GEF supported projects. This was not drawn upon during this project. Although that report had a narrower focus, many of its conclusions match ours. *Elements for an M and E Framework for Climate Change Adaptation projects*. March 27 2008. Prepared by the GEF Evaluation Office in cooperation with the GEF Adaptation task Force

funded Disaster-Preparedness and Prevention project in Cuba), and there is little indication that baselines are established from the outset against which to measure progress.

If the aim of adaptation projects is to help communities and households reduce their vulnerability to the impacts of climate change, two important questions are:

- How has adaptation increased the asset portfolio and governance support in such a way that decreases vulnerability to climate change?
- To what extent has adaptation investment resulted in improvement?

This implies the need for identifying appropriate, wide-ranging indicators encompassing processes as well as outcomes in order to determine what is happening at the level of the household as a result of the intervention. Because the household level is the critical unit from a development perspective are for poverty reduction outcomes, it is logical to make it the focus also for monitoring outcomes in reducing vulnerability to climate change risks and impacts.

Effective mechanisms to feed indicator data back up through the different levels of engagement (from household to local/community, programme, sub-national regions, national, regional, and international), as well as ways to share information across levels of indicators, are also key. Most of the evaluations do list programme and project-level context-relevant indicators, but there needs to be more systematic engagement with ultimate beneficiaries (households and communities), including 360° feedback loops as a component of participatory evaluation and stakeholder/beneficiary-determined indicators. Given the potential for differential impacts on men and women in terms of effects of climate change impacts on livelihoods, participation of women and the development of gender-sensitive indicators are also necessary. Again, there are clear benefits to be gained in carrying these up through all levels.

Another key component in monitoring and evaluation of projects and programmes is that of attribution, including establishing a credible counterfactual to enable comparisons of outcomes with and without the intervention. Evaluating and attributing 'success' in the absence of an event is necessary. Attribution requires clear definitions of vulnerabilities at the local level, as well as baseline scenarios, risk analysis, development of monitoring procedures, and identifying strengths and weaknesses relevant to improving community resilience. IDRC's outcome mapping approach (described below) is controversial in this respect because although it can measure changes in behaviour of beneficiaries, it does not pin down attribution.

#### 4.1.2 Assessment of evaluation questions and methods for different types of intervention

Given that there have been relatively few evaluations concerned with explicit adaptation initiatives, finding clear statements of methods used in evaluations can be a challenge. The programme evaluations contained in the GEF database allow us to identify some evaluation questions and methods used for different types of intervention. While the emphasis so far has been on DRR, the different projects falling within various programmes are sufficiently diverse to allow us to consider questions and methods used for a range of interventions – in both rural and urban sectors – and in the context of different types of risk. These tend to fall into the two main categories of time-frames (how

might the longer time-frames of climate change adaptation be embedded in evaluation processes?), and methods (how can we ensure that evaluation at the project or programme level can be embedded within broader evaluation of adaptation at higher (national, international) levels?) Table A4 in the Annex provides full details of the analysis.

The key modifications that we have identified for CCAI include:

- Need to identify baselines for climate, and socio-economic conditions
- Time frames: mechanisms to provide ongoing feedback on impacts beyond the lifespan of the project and Institutional memory; for example provision of information storage and retrieval systems
- Methods: participatory evaluation - 360°
- Impact indicators developed in partnership with beneficiaries
- Clear and effective feedback mechanisms from local through national, regional and international levels, from household to project to programme to policy.

### 4.1.3 Assessment of exemplar indicators for each intervention type, and their strengths and weaknesses

It is possible to use selected interventions from the evaluations in the GEF database and assess the effectiveness of the indicators used for the purposes of evaluating CCAI. The indicators selected relate to a livelihoods focus where many of these case studies have been undertaken, and also where evaluation without including climate change interventions, is well advanced. An assessment of the indicators of success used to evaluate the projects is provided in Table A5 in the Annex. Projects and programme characteristics range from building village-level institutions, capacity building, providing climate information to farmers and communities to more 'traditional' development activities focused on for example, technology transfer, diversifying livelihoods or improving asset management with the aim of improving livelihoods overall.

The indicators also tend to measure outcomes and outputs, with few, if any, that capture changes in behaviour especially over the long term. One 'con' that features over and over is the propensity for such indicators to consider success as an improvement in an indicator, which means it can fall down when it comes to measuring adaptation success if such success means that there has been 'no change', the alternative being that climate impacts cause a worsening of the indicator. Likewise, if a deterioration is not as bad as it might have been in the absence of the intervention. Trade-offs between environmental and development objectives may need to be more explicit here. Recent work by the Tyndall Centre has shown that some short- term CCAI can actually reduce long-term resilience of ecosystems to climate change[37]. There may also be trade-offs with some groups benefiting at the expense of others [38]

## 4.2 UNDP's Monitoring and Evaluation Framework.

UNDP have recently devised a draft monitoring framework for CCAI for their comprehensive portfolio of 130 country assessments. It focuses on two challenges of monitoring CCAI – i) cuts across various development objectives and ii) views adaptation

[37] Personal communication , Neil Adger 03-09-08

[38] See presentation of Mark Pelling in Report of Expert Consultation on Adaptation Metrics IGES, Tokyo 17-18 April 2008. www.iges.or.jp/en/cp/activity20.html , accessed 09-09-08

as more than an outcome, rather a 'diverse suite of ongoing processes that enable the achievement of development objectives under changing conditions'. It suggests 'standard indicators and units for adaptation initiatives across five adaptation 'processes': capacity building, information management, policymaking and planning, decision-making for development, risk reduction practices/resources management/ livelihoods. It follows six thematic areas: food security/agriculture, water resource management, disaster risk management, coastal zone development, and public health.
UNDP look at processes at various scales, local, national, international with indicators following the logframe – objective, outcome, and output. They suggest standard indicators in common units that can be aggregated across multiple projects. There is also a framework to help define scope, identify outcomes, and a link to 'project-level interventions to measurable indicators of adaptation progress'. It is a powerful integration from global through national to local effort, working from the MDGs. Indicators follow the logframe – objective, outcome, output but does not cover the project output level as it is too specific. They suggest standard indicators in common units that can be aggregated across multiple projects - see Table 3 below. This framework helps to define scope, identify outcomes, and also link 'project-level interventions to measurable indicators of adaptation progress' types of indicators: coverage, impact, sustainability, 'replicability'. They also allow for supplemental, project-specific indicators.

The framework identifies the need for M&E to extend beyond the lifetime of projects to assess long-term achievements, especially challenging due to the changing nature of climate-related hazards, and the way they potentially affect development outcomes. It recognises the importance of establishing clear lines of attribution i.e. linking 'success' in adaptation to project interventions. UNDP suggest a combination of qualitative and quantitative indicators 'alongside narrative information to changes that support the desired outcome'. As success may not be apparent for years after the end of a project, 'proxy measures or markers of progress toward vulnerability reduction and increased adaptive capacity' are needed. They also recognise the climate baseline is moving – so evaluations need to assess impacts against 'changing hazard profiles' – before and after comparisons are not sufficient.

However, more attention needs to be given to intermediate or outcome (as compared with impact) indicators i.e. measures of those things that make the desired impact more likely. These could be the proxy measures/markers of progress they mention and are identified elsewhere in this report as being crucial to evaluation of CCAI.

**I. Coverage**

i. Number of policies, plans or programmes introduced or adjusted to incorporate climate change risks.
ii. Number of stakeholders (e.g. communities, households, agencies, decision makers) engaged in capacity building activities for vulnerability reduction or improved adaptive capacity.
iii. Number of stakeholders served by new or expanded climate information management systems (e.g. early warning systems, forecasting, etc.)
iv. Number of investment decisions revised or made to incorporate climate change risks).
v. Number of risk-reducing practices/measures implemented to support adaptation of livelihoods and/or resource management.

**II. Impact**

i. Percent **change in stakeholders' behaviours** utilising adjusted processes, practices or methods for managing climate change risks, assessed via QBS or other evidence (relevant across processes i-v).

| |
|---|
| ii. Percent **change in stakeholders' capacities** to manage climate change (e.g. communicate climate change risks, disseminate information, or make decisions based on high quality information), as relevant, assessed via QBS.<br>iii. Percent **change in use of/performance of information management systems**, for example, early warning response times.<br>iv. Percent change in **stakeholder perceptions of vulnerability** to (or capacity to adapt to) a recurrence of primary climate change-related threat(s), assessed via QBS.<br>v. Narrative description of the **role of project interventions in reducing vulnerability** (or improving capacity to adapt to climate change-related threat(s)), assessed via QBS.<br>vi. Improvement in the relevant **quantitative development outcome** (food security, water resources, health outcomes, etc.) as a supplemental indicator. |
| **III. Sustainability**<br>i. Number of project beneficiaries involved in capacity building for implementation of specific adaptation measures or decision-support tools.<br>ii. Availability of skills and resources necessary to continue adaptation after conclusion of project (at relevant scale), assessed via QBS.<br>iii. Stakeholder perceptions of adaptation sustainability, assessed via QBS. |
| **IV. Replicability**<br>i. Number of 'lessons learned' codified.<br>ii. Number of relevant networks or communities with which lessons learned are disseminated. |

*Figure 6: UNDP (2008) Standard Indicators, applicable across all Thematic Areas*[39]

## 4.3 IDRC's Outcome Mapping Approach

IDRC has recently developed a methodology for using monitoring and evaluation of CCAI 'as a capacity development tool, to inform project management, to assist cohorts of projects, and to empower the beneficiaries of those projects'[40]. They provide a framework to support project teams in developing their own evaluation tool for adaptive capacity. It is based on outcome mapping (OM) – which documents behavioural changes in practices as outcomes, complemented by 'qualitative and quantitative indicators of adaptive capacity specific to each project'. It particularly matches the emphasis within CCAI for capacity building and knowledge building with stakeholder organisations.

This approach 'maps out the chain of influences necessary to reach the ultimate beneficiaries and the environments they live in'. Its core purpose is participatory and should therefore be considered by other agencies as capacity building, and as such is an important part of achieving CCAI. In contrast to other approaches 'OM does not attempt to attribute the outcome to the project or program activities and recognises that other players…also make important contributions' The idea is that progress markers are developed along the chain of influence and negotiated between 'the group seeking to have influence and its boundary partners' (see Table A3 in the Annex for an example).

Outcome mapping, perhaps more realistically than many other evaluation methods, does not attempt to attribute impact or even identify different contributions made, but looks at what influence the project itself can realistically have on the people it works with (its boundary partners). On the other hand, there is a danger that with outcome mapping the

[39] Brooks, N and J. Frankel Reed (2008) Proposed framework for monitoring and evaluating adaptation to climate change. UNDP Paper for the GEF International Workshop on Evaluating Climate Change and Development . UNDP

[40] IDRC (2008) CCAA's approach to using monitoring and evaluation to strengthen climate adaptive capacity. N Beaulieu, F Denton, V Orindi, S. carter and S Anderson. Paper for the International Workshop on Evaluating Climate Change and Development Alexandria May 10-13th 2008

logical links between the different strategies and outcomes that the project seeks to have (e.g. communities setting up disaster preparedness groups) and the ultimate purpose of those outcomes (e.g. environmental changes and reduced impact of disasters) are ignored. It is important to ensure that outcomes do actually lead to the ultimate goal. It is also important to make explicit what changes in behaviour, policies or practice are expected among the groups being influenced (local government, community groups, national government etc).

## 4.4 Indicators and approaches from the Disaster Risk Reduction area

One distinctive feature of adaptation to climate change is that it involves the development of adaptive capacity and a learning process. Increasingly, DRR approaches are becoming embedded within development programming and the progress of 'mainstreaming' DRR appears to be ahead of efforts to 'mainstream' climate change adaptation. With a strong emerging realisation that DRR interventions must simultaneously tackle poverty and disaster risk at the same time to be successful, efforts to build evaluation frameworks around the Hyogo Framework for Action[41] are increasingly drawing on indicators and methods from the evaluation approaches to measuring the success of mainstream poverty and development projects and programmes. If, as many suggest, the starting point for climate change adaptation is reducing the risk to current climate variability then it makes sense for the evaluation of CCAI, at least at a project and programme level, to take DRR evaluation and indicator frameworks as a starting point.

Recently, an indicator framework has been developed around the Hyogo Framework for Action (HFA)[42], the non-binding international agreement on disaster reduction signed by 168 countries in 2005.

The indicators are organised around the HFA's five priorities:
*1. Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation*.
*2. Identify, assess and monitor disaster risks and enhance early warning.*
*3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels.*
*4. Reduce the underlying risk factors.*
5. *Strengthen disaster preparedness for effective response at all levels.*

Each indicator is divided into five levels of achievement, as displayed in the table (Figure 7) for the indicator: 'A strategy for data provision for disaster risk reduction is in place'.

[41] Hyogo Framework for Action is a non-binding international agreement committing 168 signatory governments to pursue efforts to reduce disaster risk in their countries. It is commonly divided into 5 thematic action areas:
[42] UN/ISDR, 2008. Indicators of Progress: Guidance on Measuring the Reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action. United Nations secretariat of the International Strategy for Disaster Reduction (UN/ISDR), Geneva, Switzerland

| Level | Generic description of achievement | Examples of an assessment of the indicator "A strategy for data provision for disaster risk reduction is in place" |
|---|---|---|
| 5 | Comprehensive achievement has been attained, with the commitment and capacities to sustain efforts at all levels. | "Systematic, properly resourced processes for data collection and dissemination are in place, with evaluation, analysis and improvements being routinely undertaken. Plans and commitments are publicised and the work is well integrated into other programmes." |
| 4 | Substantial achievement has been attained, but with some recognised deficiencies in commitment, financial resources or operational capacities. | *"Processes for data collection and dissemination are in place for all hazards and most vulnerability factors, but there are shortcomings in dissemination and analysis that are being addressed."* |
| 3 | There is some commitment and capacities to achieving DRR but progress is not substantial. | *"There is a systematic commitment to collecting and archiving hazard data, but little awareness of data needs for determining vulnerability factors, and a lack of systematic planning and operational skills".* |
| 2 | Achievements have been made but are relatively small or incomplete, and while improvements are planned, the commitment and capacities are limited. | *"Some data collection and analysis has been done in the past, but in an ad hoc way. There are plans to improve data activities, but resources and capacities are very limited."* |
| 1 | Achievements are minor and there are few signs of planning or forward action to improve the situation. | *"There is little awareness of the need to systematically collect and analyse data related to disaster events and climatic risks."* |

*Figure 7: Table showing the levels of achievement for an indicator under the Hyogo Framework for Action[43].:*

Each of the HFA's five areas has four or five headline indicators. For example, the indicators on priority one '*Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation'* are:

- National disaster risk reduction policy framework elaborated
- Multi-sectoral disaster risk reduction platform operational
- Disaster risk reduction legal framework elaborated
- Dedicated resources for disaster risk reduction allocated

These indicators reflect an international and national scale for monitoring disaster risk reduction, Twigg's (2007) *Characteristics of a Disaster Resilient Community* provides this, again organised around the five priority areas, but summarised as – (i) governance, (ii) risk assessment, (iii) knowledge and education, (iv) risk management and vulnerability reduction and (v) disaster preparedness and response. Each indicator is organised around 'components of resilience' as shown in Figure 8:

[43] Source: UN/ISDR 2008 Indicators of progress: Guidance on measuring the reduction of Disaster Risks and the Implementation of the Hyogo Framework for Action. UNISDR, Geneva.

| | Thematic area | Components of resilience |
|---|---|---|
| 1 | Governance | • Policy, planning, priorities and political commitment.<br>• Legal and regulatory systems<br>• Integration with development policies and planning<br>• Integration with emergency response and recovery<br>• Institutional mechanisms, capacities and structures; allocation of responsibilities<br>• Partnerships<br>• Accountability and community participation |
| 2 | Risk assessment | • Hazards/risk data and assessment<br>• Vulnerability and impact data and assessment<br>• Scientific and technical capacities and innovation |
| 3 | Knowledge and education | • Public awareness, knowledge and skills<br>• Information management and sharing<br>• Education and training<br>• Cultures, attitudes, motivation<br>• Learning and research |
| 4 | Risk management and vulnerability reduction | • Environmental and natural resource management<br>• Health and well being<br>• Sustainable livelihoods<br>• Social protection<br>• Financial instruments<br>• Physical protection; structural and technical measures<br>• Planning régimes |
| 5 | Disaster preparedness and response | • Organisational capacities and coordination<br>• Early warning systems<br>• Preparedness and contingency planning<br>• Emergency resources and infrastructure<br>• Emergency response and recovery<br>• Participation, voluntarism, accountability |

Duplicating another set of tools, norms and evaluation approaches will further entrench the barriers between DRR, adaptation and development. Simply, effective evaluation of CCAI would benefit, and even depends on, closer programmatic links across climate change, DRR and development. Although the opportunities for integration across disaster management, climate change, environment and natural resources management and poverty reduction, mean a significant payoff has been recognised for some time, little has yet happened[44]. But both climate change and DRR are structured and developing separately in terms of institutional frameworks at international, national and local levels[45]. DRR and adaptation to climate change have many similarities. There are great opportunities for synergies and this is what any new initiative on establishing evaluation for CCAI should support.

## 4.5 Discussion and summary

[44] Ian Burton and John Soussan. Livelihoods and climate change: combining disaster risk reduction, natural resources management and climate change adaptation in a new approach to the reduction of vulnerability and poverty IUCN, IISD SEI Concept Paper, October 2002.

[45] M M Hedger (2008) Support Study for the Establishment of the Global Climate Change Alliance

The review of the GEF database shows that methods used so far in the evaluation of methodologies for CCAI could be improved and strengthened with a greater focus on the critical features of what makes successful climate change interventions.

It is known from established evaluation methodology that one of the biggest challenges is timing in approaches to M&E, especially in the context of unpredictable events including the identification of indicators that can be monitored over time to understand changing risk factors, impacts and conditions. Evaluations of slow-onset disasters provide valuable lessons for dealing with longer timescales coupled with the need to respond rapidly to an unpredicted event. One important finding from our review of the GEF database is the tendency to compromise on community participation throughout the programme cycle when there is a need to respond rapidly. In terms of slow-onset crises there is much room for contacting communities earlier and identifying interventions building on community priorities and capacities, making potential adaptation more effective, timely and sustainable. Long timescales should also create better opportunities to build on national strategies for climate change adaptation and to build CCA into longer-term strategies for food security and poverty alleviation. Institutional memory is key for learning from interventions, even more so given the time horizons related to climate change. Given the difficulties in tracking down stakeholders/beneficiaries even when evaluating projects on relatively short 2-3 year timescales, this is not trivial and calls for strong feedback mechanisms, effective gathering and recording of appropriate information, and reliable and accessible information repositories.

These insights match with points that have emerged from the DRR community. It has been found that there are few long-term impact assessments and that M&E should be approached as a mutual learning process for all involved with beneficiary communities being involved in evaluation[46]. It has also been learnt that much more transparency is needed in M&E: the failure to share and publish evaluations hinders the acquisition of knowledge about success and failure.

Performance management of any crosscutting issue is difficult as most existing administrative instruments are designed for single-sector policies. Contributions to a crosscutting area have to be secured by engagement and persuasion of each individual sector. However, given that the challenge of evaluating crosscutting themes has been addressed (at least in theory) in the context of development evaluations, this may be an area in which development practice leads the way for adaptation more widely.

Experience with indicators for vulnerability, adaptive capacity and adaptation measures has progressed in a number of areas[47]. The decision context is critical: whether present-day or future vulnerability is the target, relevance to specific stakeholders and their planning frameworks, and use in different decision analyses (from narratives and policy exercises to cost-benefit analysis). The need for precision, robustness, transparency,

[46] Twigg, J. (2004) Good practice review. Disaster risk reduction. Mitigation and preparedness in development and emergency programming, ODI/HPN.

[47] See for example,
Adger, N., Brooks, N., Bentham, G., Agnew, M. and Eriksen, S. 2004. New indicators of vulnerability and adaptive capacity. Tyndall Centre Technical Report 7, Tyndall Centre for Climate Change Research.
Downing, T.E., Bharwani, S., Warwick, C., Ziervogel, G., Bithel, B., Chattoe, E., Hassan, B., New, M. and Washington, R. 2003 Climate adaptation: Actions, strategies and capacity from an actor oriented perspective. SEI Working Paper. Stockholm Environment Institute, Oxford.
Downing, T.E., Aerts, J., Soussan, J., Barthelemy, O., Bharwani, S., Ionescu, C., Hinkel, J., Klein, R.J.T., Mata, L.J., Moss, S., Purkey, D. and Ziervogel, G. 2006 Integrating social vulnerability into water management. SEI Working Paper and Newater Working Paper No. 5. Stockholm Environment Institute, Oxford

and objectivity are common concerns. Scale issues require consideration, including the resolution of the indicator (e.g., the water resource zone or government planning districts), time period for events and trends, and aggregation to the national level (e.g., loss of information about 'hotspots').

Bottom-up deductive approaches have so far dominated the construction of indicators we have considered here. It will also be necessary to consider how theory based, deductive approaches can fit in. Using theories of change within the evaluation could be a way of embracing the dynamic element of climate change and increasing understanding of it.

*(More information on indicators is provided in the separate Technical Supplement available from the IDS website*.)
http://www.ids.ac.uk/go/browse-by-subject/climate-change *).*

# 5. A framework for evaluating CCAI from a development perspective and next stages

## 5.1 Introduction

Preceding sections have demonstrated that at present, the field of adaptation is dynamic, with ideas developing rapidly, and that approaches for evaluation are also evolving. Technical understanding of what is required is increasing, whilst there are still areas for conceptual clarification. Currently too, CCAI are often being framed outside established areas (even silos) of policy interventions but there are significant moves underway to mainstream climate change within these. This driver is hitting a geopolitical contentious issue - that developed countries have an obligation under the UNFCCC to provide additional resources for climate change.

Whilst the situation is fluid, there is a need to develop a coherent picture and establish frameworks to make progress in evaluating CCAI.

## 5.2 Databases of climate change interventions

One critical area where more progress is necessary is to develop a database of climate change adaptations. A number of submissions have been requested by the UNFCCC, most recently in connection with the development of the Nairobi Work Programme, but it is clear that even for the leading donor group, the European Union and its Member States, bilateral and Commission efforts have not yet been brought together in a consistent way[48]. In the UNFCCC as well, there is a database of 151 coping strategies, but scope, objectives, funders, agents and implementers are not always explicit and there is also considerable overlap with the WRI database, although it is not always possible to determine project match because information is recorded in inconsistent formats in both databases - by country in the UNFCCC database and by project type in WRI's.

The most complete is WRI's analysis, based on a review of 135 'adaptation' activities labelled as such by project implementers or researchers. A significant number of cases were excluded as being knowledge generation only, and not practical action. It was also recognised that the dependence on internet sources captured a relatively low number of legislative and policy activities. This might be why the largest body of cases were found at the community level, followed by other sub national jurisdictions such as a coastal zone, a water basin or a district. Agriculture and disaster risk management predominate, followed by water resource management and coastal resources.

## 5.3 Climate change and development: national level evaluation perspectives

In section two, the significance of the international level was explained as providing the political drive for the funding of CCAI. There are also significant issues at other scales which need more analysis in relation to the construction of a framework and the development of indicators for the measurement of impact.

[48] MM Hedger (2008) Support Study for the Global Climate Change Alliance

### 5.3.1 NAPAs and PRSPs

Following the reporting of vulnerability to climate change, within the National Communications to the UNFCCC, the National Adaptation Programmes of Action (NAPAs) by the LDCs have drawn attention to the importance and significance of the national level in delivering adaptation. At the same time, the development of new aid instruments – notably buying into PRSPs through direct budget support – has opened fresh challenges in assessing aid impact. Mainstreaming adaptation into development agendas has not yet penetrated the world of PRSPs, and there has been a general disconnect between NAPAs and PRSPs. UNFCCC workshops have identified that crucially little work has been undertaken to integrate adaptation into development plans or within existing poverty alleviation agendas. There is a need to support the development of legal and institutional frameworks at the national level to promote integration. Rather than fostering an explosion of evaluations of the multiplicity of interventions which can be labeled as climate change adaptation interventions, this calls for greater efforts in ensuring adaptation rests within PRSPS at the outset with consequent integration of NAPAs. In addition it is vital that sectoral plans, particularly water and agriculture have climate change fully integrated within them.

### 5.3.2 National level indicators

A comprehensive evaluation of adaptation at national level will require the development of indicators of progress. The nature and focus of such indicators will depend strongly on the purpose (and customer) of the evaluation. We envisage at least four situations for which indicators might be required:

- In-country government wishes to evaluate the success of its adaptation policies to inform policy development
- Donors and development partners wish to evaluate the standard of adaptation in a country to monitor and justify current and future funding and inform programme decisions
- Donors and development partners wish to evaluate the aggregate impact of adaptation interventions they support in-country to account for funding and inform programme planning
- International community requires a comparative measure of a country's adaptation status for classification in international negotiations and eligibility for funds

While there may be overlap between these situations, there are significant distinctions. An in-country government evaluating the success of adaptation policies will need to use indicators that are logically tied to stated policy goals, and that can chart progress towards (preferably) measurable policy targets. This situation is largely hypothetical at present since even developed countries are some way from defining this kind of adaptation policy monitoring framework. However, developing country governments are including adaptation within high-level policy documents, which means that ultimately this kind of evaluation may be required.

Adaptation indicators required by donors and development partners serve two distinct purposes. First, as a particular donor agency reviews and plans funding and programme activities across its portfolio, it may need to track the status of one country against others

in order to ensure that investments are directed towards the greatest need and/or where it will make the greatest difference. Indicators of adaptation at a national level in this case need not be tied to broader in-country policy goals; rather they should be transferable from one country to another. Second, a donor agency may wish to monitor the efficacy of its investment in adaptation interventions in a given country by measuring the aggregate impact at national level over a given period. In this case, it would be helpful for indicators to be scalable from community up to national level, or from project to programme level.

A third situation in which adaptation indicators could be used is linked to the international political scene. Increasing levels of funding are being provided for adaptation in UNFCCC non-Annex 1 countries, and negotiations on binding climate targets are heating up. Indicators that provide a comparative measure of a country's 'adaptation status' might prove instrumental in justifying access to adaptation funds as well as strengthening the case for particular international climate targets. Indicators in this context would need to be tied somehow to the individual NAPA, but also transferable across countries. Strangely, in this situation there may be tension for countries between achieving high scores insofar as it shows real reductions in climate vulnerability, and retaining low scores, if that justifies increased access to funds.

Given the range of potential evaluation needs, it is unlikely that a single indicator or set of indicators for adaptation at national level would be suitable across the board. Additionally, since climate change adaptation is still a relatively new area of policy implementation, there is very little in the way of good practice, particularly at national scale, from which to draw out best options for indicators. Finally we highlight a further complication in monitoring adaptation: it cannot easily be separated from all of the different areas of development, which are implied by the term. The adaptation concept involves making changes to another policy area because of climate change; so there are inevitably overlaps and problems of attribution. This means that indicators may well require sector-specific dimensions. One key area of overlap is likely to be DRR.

National level evaluations of adaptation could fit appropriately into any of these categories, depending upon the purpose for which the evaluation is intended. Given that the systems, processes and data can be put in place to enable this range of development evaluations, there is no reason why similar procedures could not be used to generate adaptation evaluations. It is likely that similar indicators could be used, notwithstanding the critical issue of attribution. Just as with development, there is unlikely to be one single indicator that can be used as a measure of a country's success in adaptation, rather a group of key indicators will be required, along with crucial elements of stakeholder consultation and written review.

***Indicator Issues Distinctive at National Level***

Aside from general challenges relating to evaluation of adaptation, there are a number of issues that are distinctive to national level. These include:

- The importance of 'mainstreaming' in relation to adaptation. While specific adaptation interventions (e.g. project level) may be measured in the context of the sector and local community at which they are targeted, at the national level, adaptation, and therefore also any evaluation, requires strong coordination across sectors, policies, strategies and plans, as progress in addressing climate

change sees adaptation move from an environmental challenge to one that features in relation to economy, social policy and development in general.

- The challenge of integrating adaptation into the potentially short lifetime of government plans, particularly in national contexts where stable governments may be short-lived or easily swayed from one policy priority to another.
- Overcoming some of the institutional issues, which may be present at all levels, but particularly challenging at national levels, where it may be undiplomatic to address them specifically, including potential problems of corruption.
- The overriding drive towards achieving MDGs. Particularly at national level, it will be unproductive to introduce objectives, which are separate from or perceived to be a distraction from the MDGs. Therefore, the pragmatic approach will look to develop targets and indicators for adaptation that can somehow be aligned with MDG priorities.
- In line with current approaches to development, adaptation efforts are highly integrated. Most projects utilise multiple strategies and address multiple sources of vulnerability. Many bridge sectoral boundaries and address more than one impact associated with climate change.

## 5.4 Community and local level

It has already been indicated that in the existing databases covered in section 5.2 the largest body of cases were found at the community level, followed by other sub national jurisdictions such as a coastal zone, a water basin or a district. Agriculture and disaster risk management predominate, followed by water resource management and coastal resources.

In the context of development, community-based adaptation is receiving special attention now as it is thought it can reach the poor by targeting the communities most vulnerable to climate change and develop adaptation options with them, building on information about community capacity, knowledge and practices used to cope with climate hazards[49]. Ten countries have recently been included in a five year pilot programme of UNDP funded by the GEF Strategic Priority on Adaptation. It is intended that 8-20 projects will be implemented in each country. Community outreach and project development activities began in February 2008 and have led to some projects starting in mid 2008[50]. The aim is to use these pilots as policy/project laboratories and generate knowledge about how to adapt to climate change at the local level. The aim is to support small communities and to show how adaptation planning and assessment can be practically translated into projects that will provide real benefits and may be integrated into national policy and sustainable development planning[51]. Evaluation is factored into the programme and will: identify lessons learned about programme design, implementation and management; and the impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals[52].

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[49] Hug, S. (2008)Community- based adaptation. *Special issue on community-based adaptation* Tiempo Issue 68 July 2008

[50] UNDP (2008) Community Based Adaptation Project, Steering Committee Meeting Minutes, July 2008. http://www.undp.org/gef/05/portfolio/writeups/cc/CBA_programme.html (accessed 27/08/08)

[51] UNDP (2006) Community-based Adaptation Project document see http://www.undp.org/gef/05/portfolio/writeups/cc/CBA_programme.html (accessed 27/08/08) for more information, joint project with GEF under the SGP Small grants Programme

[52] Community-based Adaptation Project document see http://www.undp.org/gef/05/portfolio/writeups/cc/CBA_programme.html (accessed 27/08/08) for more information

## 5.5 Household level

In terms of poverty alleviation, which is a core concern of development, the crucial unit of measurement for impact is the household. Especially poor households that are most vulnerable to lasting damage from climate change events, which are the 'bottom line' in assessing CCAI impacts. Evaluation is highly relevant but there are some special challenges here. Ultimately we need to know whether household climate change vulnerability has been sustainably reduced.

When CCAI address drivers of vulnerability they are about enhancing the capacity of the household to manage climate change risks and can be evaluated quite precisely. CCAI evaluations are apparently challenged by the absence of a counter factual but this challenge is illusory. If household capacity to manage climate change events (i.e. their resilience) is measured through household wealth defined by their asset portfolio, as in the sustainable livelihoods framework, then before and after comparisons can provide a measure of impact.

Where CCAI relate to building response capacity, it concerns process; the intervention may be, for example, a disaster preparedness intervention that does not impact at the level of the household until a climate-related event occurs. This type of DRR intervention is in a wider group of interventions that are driven by a precautionary motive. Unless the event occurs, such precautionary interventions have no immediate welfare impact and rely on theory to establish their efficiency and effectiveness. Adaptive capacity interventions – to both rapid and slow onset climate change-related events - are the major component of this set.

Where CCAI are about managing climate risk, they are potentially the most complex to evaluate. Such interventions are anyway precautionary, unless our science is good enough to make predictions reliable, and involve the use of climate screening guidelines to avoid maladaptation practice. They involve decisions about *changing* proposed development interventions to incorporate climate risk. They are susceptible to Type One Errors, making changes when no risk is there, in order to prevent Type Two Errors when failure to adapt results in climate change having avoidable negative impact.

CCAI which directly confront climate change, are the most straightforward to evaluate. These are adaptive responses to specific identified climate change events where we are fairly certain of very high risk, and of welfare loss through failure to act. Evaluation here is concerned primarily with the cost effectiveness of alternative responses, allowing for distributional consequences.

## 5.6 Pyramid of adaptation evaluation

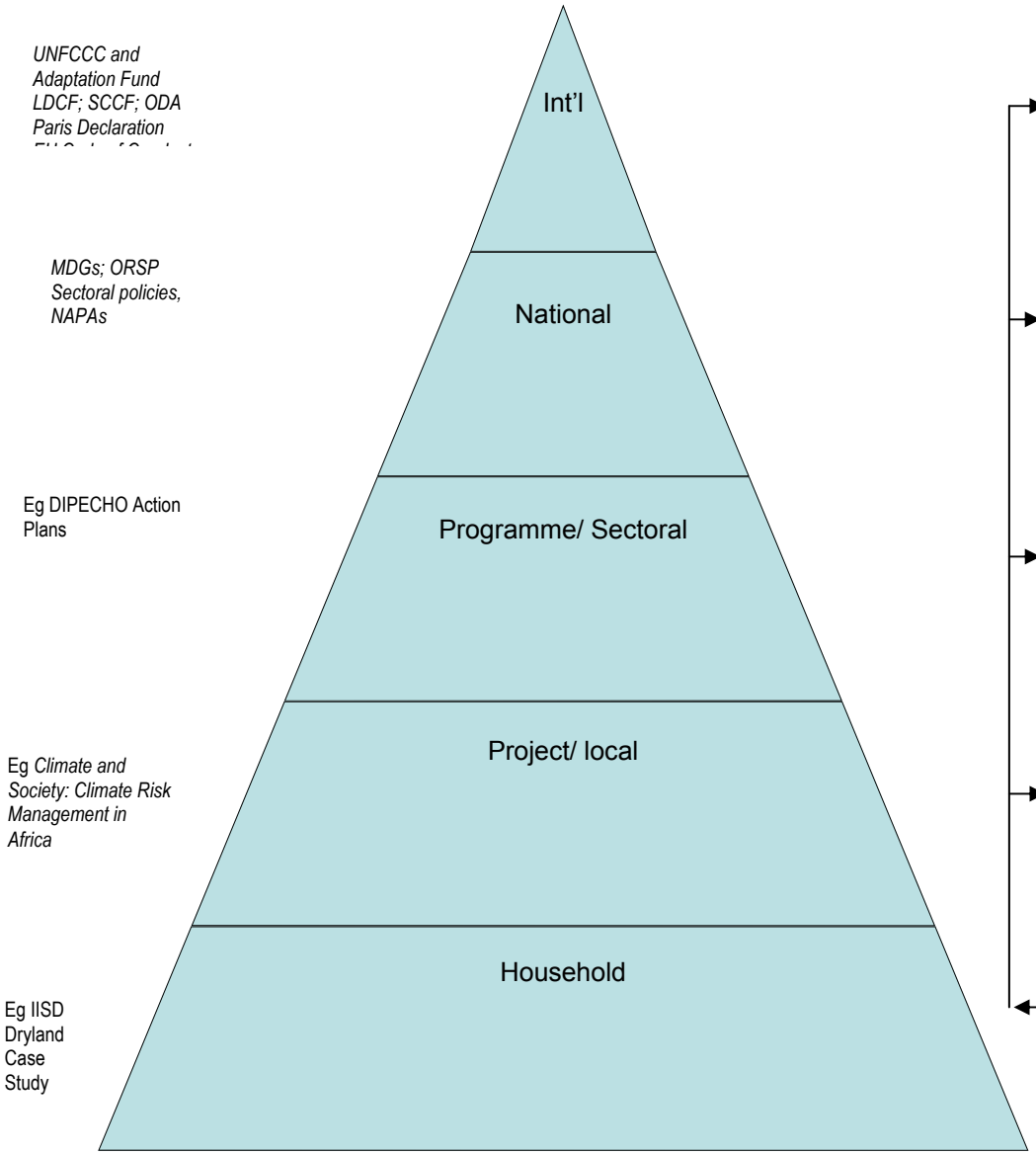
In order to cut through the complexity involved in the evaluation of CCAI, we have devised a pyramid diagram, to show the interrelationships of scale, evaluation methods and indicators. What it does not do explicitly is take account of the factors for success which we have previously identified – effectiveness, flexibility, equity, efficiency and sustainability – these will need to be fully explored by the selected evaluation method and reflected in the indicators. The main point of the pyramid is to demonstrate the

multi- scaled nature of effort required, and particularly that to deliver at the critical household level, a start is required at international level. And through this integration, a culmination of effort can be identified. The diagram attached is a first draft and can be further developed, and used in a number of different situations.

This pyramid reflects the structure of development and its finance, but does not show how unfolding knowledge about climate risk management and particularly increased understanding about climate change would feed into this. It is likely this will happen at all scales, with some interconnections. Measurement of the scientific dimension of climate change impacts, and an assessment of CCAI in relation to these, is likely to have most significance at the local scale. Evaluations can also be framed to assess this dimension specifically, in relation to changes in processes, outcomes and behaviour. The use of theories of change which are well-established in the evaluation community would seem to be appropriate here.

The real need now is for the climate change adaptation industry to engage with the professionals working in evaluation and develop coherent evaluation strategies. The long-term benefits to CCAI welfare effectiveness may be large. Moreover, addressing this need for professional evaluation will expand the evidence base available for political debate on adaptation funding. Finally, whilst developing adopting coherent frameworks for evaluation is important and effort should be put into developing these, as is acquainting climate change adaptation professionals about evaluation, it will also be important to ensure these frameworks are streamlined and effective[53].

[53] See for example Ian Noble's concluding comments at in Report of Expert Consultation on Adaptation Metrics IGES, Tokyo 17-18 April 2008. www.iges.or.jp/en/cp/activity20.html , accessed 09-09-08




| Indicator types: process, outcomes, behaviour | M&E Focus: Multi-decadal time-frames; institutional memory; achieving development objectives sensitive to climate change |
|---|---|
| Climate resilience, increased awareness, targeted on most need<br>Global markets effective in risk transfer; effective global finance delivery mechanisms<br>Compliance on aid effectiveness<br>Funds not to undermine role of state | Frameworks for coordination of donor agency and national governments for measuring long- term effectiveness of development decisions in face of climate change; Stakeholder consultation and written review |
| Integrating climate change risk and adaptation into policies e.g. PRSP;<br>Engagement of, and coordination across, multiple sectors;<br>Indicators tied to stated policy goals;<br>Response capacity increased; climate information incorporated into decision-making, investment (e.g. infrastructure);<br>effective legislative and institutional | Progress made towards measurable policy targets;<br>Governance: conditions created (regulatory, institutional, managerial) to allow CCA actions to be undertaken.<br>Integrated information systems<br>Integrated M&E systems<br>Policy linked to implementation<br>Stakeholder consultation, review |
| Institution building, learning and development; Capacity building;<br>Integrating climate change risk and adaptation into sectoral policies;<br>Weather monitoring; Climate proofing<br>Information management systems for climate change decision support. | M&E knowledge sharing platforms<br>Integrated information systems<br>Integrated M&E systems<br>Portfolio review; stakeholder consultation, written review; Indicators tied to broad in-country policy goals, comparable and/or transferable across portfolios/countries |
| Improved information systems inc EWS<br>Community support groups established<br>Vulnerability mapping<br>Climate proofing | Baseline surveys; established counterfactual; participatory methods - multi-media models; 360° feedback mechanisms; stakeholder consultation, written review; outcome mapping; |
| *H'hold and Individ level welfare indicators e.g.: increase numbers, % (scaleable)*<br>Increased production<br>Improved land productivity, living conditions<br>Increased asset ownership<br>Improved participation/ voice/ citizenship<br>Better livelihood risk management; access to insurance; diversification<br>Preparing, planning, recovering from hazard events | Baseline surveys; established counterfactual; participatory methods - multi-media models; 360° feedback mechanisms; stakeholder consultation, written review; outcome mapping; |

S,

## 6. Conclusions and recommendations

1. Climate change adaptation interventions (CCAI) are diverse, cutting across sectors and scales. They need to deliver outcomes down to the household level. They need to enable unknown changes to be tackled over the next decades. CCAI are delivered though a variety of institutional delivery mechanisms. There are known barriers and constraints to their delivery. The main message is that efforts should be made to build a consensus about what is successful adaptation, so that there is a clearer framework for evaluation of interventions intended to deliver it. We propose that the five main factors which can determine successful adaptation are: effectiveness – achieving objectives; flexibility – to account for the uncertainty of climate change and the evolving knowledge base; equity – across sectors; regions and societies; efficiency – to address agreed acceptable levels of risk; and sustainability – the wider implications of adaptation.

2. Due to the diversity of CCAI, across the continuum and across all scales (project, programme, national, international, systemic) a variety of monitoring and evaluation tools could be used to cope with the complex and the specific context in which the tools are being used. Using theories of change may be particularly helpful to capture the dynamic nature of climate change and increasing knowledge of it. Where CCAI closely match development projects, this is already happening. We have proposed a pyramid of indicators which might provide a framework to measure the accumulation and culmination of effort at local, national and global levels. A next step might be to convene an expert workshop to work out theories of change, incorporating climate change scenarios and development objectives, for a range of examples of CCAI

3. Climate change practitioners are used to dealing with tools with which to develop analysis and policy. It is therefore suggested that an Evaluation and Monitoring Tool be developed possibly within the ambit of the Nairobi Work Programme of the UNFCCC and with the involvement of groups such as the Least Developed Country Expert Group (LEG). This could build on critical features identified in this paper and the work of UNDP and IDRC.

4. As climate change impacts in the hydrological cycle are not likely to move outside the range of natural variability for another 20 years, and in the case of sea-level rise will be unfolding for many centuries even after greenhouse gases are stabilised in the atmosphere, it will also be impossible to undertake ex-post evaluations. So the key will be to devise indicators which can measure progress in knowledge generation, its assimilation and application and flexible institutions at all scales.

5. We tentatively identified some potential trade-offs between short-term and long-term actions in relation to ecosystem resilience and also between different social groups with CCAI which should be examined in more detail.

6. Within development and DRR contexts very many evaluations have been undertaken. One important point, which does emerge, is for the need for attention to be given to the evaluation of risk reduction associated with slow onset climate-related risks. Substantially more attention has been given to rapid onset disasters. Working to evaluate slow onset disasters requires the establishment of vulnerabilities at the outset, the establishment of baseline scenarios and development of the capacity to monitor change over long timescales, retain the information and provide it in usable formats at the right time.

7. As the enhanced DRR community copes with an increased impact of climate-related disasters and tries to move into pro-active mode from re-active mode, there is an increased perception of the need to link to the climate change world. In the climate change world, practical solutions and approaches within the DRR framework are clearly adaptive responses viewed from a climate change perspective. But both climate change and DRR are structured and developing separately in terms of institutional frameworks at international, national and local levels. DRR and adaptation to climate change have many

similarities. There are great opportunities for synergies, rather than duplication, and this is what any new initiative on establishing evaluation for CCAI should support.

8. We also recognise that many agencies are experiencing 'indicator overload'. Many of the development indicators already in use will be related to adaptation (or at least adaptive capacity), even if only tangentially. So, where established monitoring and reporting systems on sectoral issues related to adaptation are already in place, any indicator framework for adaptation should avoid duplicating them or creating new metrics. Instead, adaptation evaluations should include an element of interpreting the extent to which existing development policy and practice is contributing to progress in adaptation. Adaptation evaluations must be integrated with existing evaluation frameworks to avoid issue fatigue on the ground. Commonly used indicator frameworks for vulnerability and sustainable livelihoods analysis can provide a considerable amount of data that is compatible with climate change adaptation, which require no more than 're-packaging' to fit an adaptation context. This is particularly important given many development agencies and practitioners are fatigued by yet another new issue appearing as a fad to those with long standing experience. Accommodating CCAI within existing evaluation frameworks, reducing additional work, is vital.

# Annex

### Table A1: DFID Evaluations by Subject

**Project Evaluation** of individually planned undertakings designed to achieve specific objectives within a given budget and time period.

**Programme**
Evaluation of a coherent set of activities in terms of policies, institutions or finances usually covering a number of related projects or activities in one country.

**Sector**
Evaluation of a single sector or sub-sector such as health or education, or primary education.

**Country programme (all types of development assistance to one country)**
Evaluation of the combined cross-sectoral support provided by a single funding agency to a partner country. This could be done as a joint multi-stakeholder evaluation.

**Country development (all types of development assistance to a country from a partner country perspective)**
Evaluation of the combined cross-sectoral support of all funding agencies to a partner country. Including trade, donor and policy coherence, and often in relation to the country's poverty reduction strategy.

**Aid instruments**
Evaluation of a specific instrument or channel for development aid funding, e.g. through research, through NGOs, through humanitarian assistance, through balance of payment support, through general budget support for poverty reduction, through multilateral agencies, through technical assistance, or through bilateral donor projects or programmes.

**Partnerships and global Funding Mechanisms and institutions**
Include the evaluation of NGO partnership schemes, global funds, global public-private partnerships and global institutions such as the UN agencies.

**Thematic (at global level or across several different agencies work at national level)**
Evaluation of selected aspects of different types of development aid instruments, e.g. influence on trade negotiations, environment, gender, HIV/AIDS or evaluating a range of sector programmes in different countries

### Evaluation methods

The World Bank guide (2004) provides a useful summary of evaluation methods, and key points are extracted in Table A2 below.

### Table A2: Methods and key features for evaluation[54]

| METHOD | KEY FEATURES |
|---|---|
| Performance Indicators | What can we use them for?<br>• Setting performance targets and assessing progress toward achieving them. (with stakeholders)<br>• Identifying problems via an early warning system to allow corrective action to be taken.<br>• Indicating whether an in-depth evaluation or review is needed. |
| Logical Framework Approach | What can we use it for?<br>• Improving quality of project and program designs—by requiring the specification of clear objectives, the use of performance indicators, and assessment of risks.<br>• Summarising design of complex activities.<br>• Assisting the preparation of detailed operational plans.<br>• Providing objective basis for activity review, monitoring, and evaluation. |
| Theory Based Evaluation | Theory-based evaluation has similarities to the LogFrame approach but allows a much more in-depth understanding of the workings of a program or activity—the 'program theory' or 'program logic.' In particular, it need not assume simple linear cause-and effect relationships<br>What can we use it for? |



[54] Source: World Bank (2004) Monitoring and Evaluation. Some methods, tools and approaches

| | |
|---|---|
| | • Mapping design of complex activities.<br>• Improving planning and management. |
| Formal Surveys | What can we use them for?<br>• Providing baseline data against which the performance of the strategy, program, or project can be compared.<br>• Comparing different groups at a given point in time.<br>• Comparing changes over time in the same group.<br>• Comparing actual conditions with the targets established in a program or project design.<br>• Describing conditions in a particular community or group.<br>• Providing a key input to a formal evaluation of the impact of a program or project.<br>• Assessing levels of poverty as basis for preparation of *poverty reduction strategies*. |
| Rapid Appraisal Methods | What can we use them for?<br>• Providing rapid information for management decision-making, especially at the project or program level.<br>• Providing qualitative understanding of complex socioeconomic changes, highly interactive social situations, or people's values, motivations, and reactions.<br>• Providing context and interpretation for quantitative data collected by more formal methods. |
| Participatory methods | What can we use them for?<br>Learning about local conditions and local people's perspectives and priorities to design more responsive and sustainable interventions.<br>Identifying problems and trouble-shooting problems during implementation.<br>Evaluating a project, program, or policy.<br>Providing knowledge and skills to empower poor people. |
| Public Expenditure Tracking Surveys | Public expenditure tracking surveys (PETS) track the flow of public funds and determine the extent to which resources actually reach the target groups.<br>What can we use them for?<br>• Diagnosing problems in service delivery quantitatively.<br>• Providing evidence on delays, 'leakage,' and corruption. |
| Cost benefit and Cost Effectiveness Analysis | ***Cost-benefit analysis*** measures both inputs and outputs in monetary terms. ***Cost-effectiveness analysis*** estimates inputs in monetary terms and outcomes in non-monetary quantitative terms (such as improvements in student reading scores).<br>What can we use them for?<br>• Informing decisions about the most efficient allocation of resources.<br>• Identifying projects that offer the highest rate of return on investment. |
| Impact Evaluation | What can we use it for?<br>• Measuring outcomes and impacts of an activity and distinguishing these from the influence of other, external factors.<br>• Helping to clarify whether costs for an activity are justified.<br>• Informing decisions on whether to expand, modify or eliminate projects, programs or policies.<br>• Drawing lessons for improving the design and management of future activities.<br>• Comparing the effectiveness of alternative interventions.<br>• Strengthening accountability for results. |

**Table A3**: Beaulieu (2007) Progress markers for the project team, from its own point of view (all markers are 'expect to see', activities listed are the ones that will also be listed in the project's strategy journal)[55]

| Boundary partner | Project team |
|---|---|
| Outcome challenge | Facilitates a process of dialogue between stakeholders in pilot municipalities, generates knowledge about promising adaptation options, fosters experimentation of promising adaptation options. |



[55] N Beaulieu Monitoring and evaluation in the CCA programme: guidelines for project teams, programme officers and supporting evaluators

| | | | |
|---|---|---|---|
| Specific objective | Dialogue facilitation | Knowledge generation | fostering experimentation of promising adaptation options |
| Activities | Supporting the creation of multi-stakeholder municipal committees for drought and flood management | Conduct a literature review | Bring seed funding for experimentation organised by municipal committee |
| | Conducting planning meetings, with OM intentional design | Conduct surveys of practices adopted in the country | Provide resource persons to help the experimentation |
| | Conducting regular monitoring and evaluation meetings, where outcomes are discussed and strategies are adjusted | Document the successes and failures of the practices experimented (articles, technical notes) | Produce dissemination materials from the knowledge generated, for municipal committee members and farmers |

**Table A4 – Evaluation methods identified within the GEF adaptation database**

| **Interventions – sectors/ issues** | **Evaluation methods/ questions used** | **Modifications in context of adaptation** |
|---|---|---|
| Disaster-Preparedness (DIPECHO – Save the Children; 'Strengthening community multi-risk management with youth participation through peer education and gender perspective' in Holguin and Guantánamo provinces – Cuba)<br><br>*(GEF database)*<br><br>Project centered on educational process:<br>• developing capacities of the population<br>• strengthening of the role of children and young people in preparedness and response capacities.<br>• combination of an early warning system with participation of children and young people in the whole process | Monitoring, follow up and evaluation incorporated into project; External evaluation carried out by independent evaluators<br><br>How well connected is the project to national and local institutions?<br><br>Project relevance evaluation according to:<br>• the educational approach adopted, which is oriented towards long term impacts and focused on gender, children and young people; and<br>• the technical actions developed: early warning system, training and mitigation.<br>• analysis of donor project docs, interviews with key donor personnel;<br>• in-depth desk study programme interviews and consultation with staff;<br>• field visits to projects<br>• participatory (utilisation-led approach);<br>• development of different levels of analysis (global, operational and sectoral)<br>• prior consultation with relevant people on the spot (emphasis on the community population), national and local authorities, other donors and aid organisations<br>• Process-monitoring: comparing planned time limits and quantitative goals with the achieved ones. | Time frames:<br>• mechanisms to provide ongoing feedback on impacts beyond the lifespan of the project<br>• Institutional memory - Information storage and retrieval systems<br>Methods:<br>• Participatory evaluation - 360°:<br>• Impact indicators developed in partnership with beneficiaries<br>• Clear and effective feedback mechanisms from local through national, regional and international levels, from household to project to programme to policy |
| Natural Disasters - IEG Evaluation of World Bank Assistance for Natural Disasters. Portfolio Review. *528 Projects.* | • Creation of Natural Disaster and Emergency Lending Database<br>• Literature Review<br>• Project Timing | As above<br>• Monitoring and evaluation embedded in project and programme |

| | | |
|---|---|---|
| *(GEF Database).*<br><br>• Slow- and rapid-onset disasters: drought, flood, fire<br>• Rural: Forest management, irrigation, disaster-resistant crops; transport; environment; urban | • Analysis of Balance of Payment/Budget Support<br>• Surveys and Interviews<br>• Desk Case Studies<br>• Field Case Studies<br>• External Advisory Panel | |
| Tsunami evaluation coalition *(GEF Database).*<br><br>International Response to Natural Disaster: Joint evaluation to maximise learning from disaster response, analysis focused on policy level, recurrent systemic problems. Five thematic joint evaluations:<br><br>• Coordination of international response to tsunami-affected countries<br>• role of needs assessment in tsunami response<br>• Impact of tsunami response on local and national capacities<br>• Links between relief, rehabilitation and development (LRRD) in tsunami response<br>• Funding response to tsunami. | • Joint evaluation – multi-agency<br>• Desk review & literature search, Multi-stakeholder consultation workshops/ debriefings<br>• Semi-structured interviews with key actors; supplementary written inputs<br>• Group interviews; Phone interviews<br>• Collection of written data from the field<br>• Evaluation exit stakeholder meetings in the field<br>• Evaluation Steering Committee & evaluation team advice & inputs<br>• Horizontal coordination with other evaluation teams & studies<br>• Observations/field visits<br>• Dissemination of initial drafts to over 250 interviewees for validity check & feedback,<br>• Qualitative interviews with institutional stakeholders<br>• Quantitative surveys<br>• Analysis of financial records of donors and aid agencies<br>• Structured interviews with aid officials<br>• Focus group interviews and structured individual interviews with beneficiary communities.<br>• Learning review of evaluation | Time frames:<br>• mechanisms to provide ongoing feedback on impacts beyond the lifespan of the project<br>• Institutional memory - Information storage and retrieval systems<br>Methods:<br>• Impact indicators developed in partnership with beneficiaries<br>• Stronger feedback mechanisms from local through national, regional and international levels, from household to project to programme to policy |

**Table A5 – An assessment of the advantages and disadvantages of indicators used in the GEF database, with respect to CCAI**

| Adaptation Interventions – projects/ programmes | Main features of project/ programme | Indicators of adaptation success | Pros/ cons |
|---|---|---|---|
| India: Building community resilience through watershed restoration: | India:<br>• Establish Village Self-Help Groups; | Capacity building | Pro: sustainable, takes LT view |

| | | | |
|---|---|---|---|
| Sudan: Community-based rangeland rehabilitation<br><br>Sustainable Drylands Management (Watershed Organisation Trust: India, Sudan)<br>*(GEF database)* | • building hydraulic structures for *in-situ* water harvesting, aquifer recharge and erosion control;<br>• planting trees and grasses to stabilise waterways and provide fodder and fuelwood;<br>• instituting bans on tree felling and grazing for natural regeneration of shrubs and grasses;<br>• training villagers in new or improved agricultural practices and livelihood activities; and<br>• supporting cottage industries and supplemental income generation through micro-lending schemes.<br><br>Sudan:<br>• Awareness and institution building<br>• Training<br>• Rangeland rehabilitation—including land management, livestock improvement, agroforestry and sand dune fixation<br>• Community development activities: diversifying local production systems and income-generating opportunities | Environmental/ ecosystem improvements e.g. water course improvements, improved water availability for domestic consumption/ irrigation | Pro: sustainable, takes LT view; measure resource availability<br>Con: do not measure resource accessibility; will give falsely negative view of adaptation success if the 'best' outcome in climate change context is stable resource availability |
| | | Increased production | Pro: welfare indicator<br>Con: will give falsely negative view of adaptation success if the 'best' outcome is stabilised production |
| | | Improved land productivity | As above |
| | | Improved living conditions | As above |
| | | Increased asset ownership | As above |
| | | Improved livelihood management | Pro: long term, sustainable<br>Con: how to measure? In relation to what? |
| | | Better risk management | As above |
| | | Active participation of women | Pro: increased likelihood of reaching most vulnerable beneficiaries |
| | | Improved participation/ voice/ citizenship | Pro: long term, sustainable |
| | | Lessons learned and carried through to national and state policy | Pro: long term, sustainable |
| Climate risk management in Africa: | Mozambique - Flood Management<br><br>Mali - Agriculture<br><br>Ethiopia - Food Security<br><br>Southern Africa - Epidemic | Farmers able to measure and interpret climate related variables and incorporate in decision-making. | Pro: capacity building and empowering, long term and sustainable<br>Con: obsolescence? Accuracy? |
| | | Stakeholder access to meteorological data | Con: stakeholders do not know how to use information |

| | | | |
|---|---|---|---|
| | Malaria<br><br>Malawi - Drought Insurance | Flood/ drought warnings timely and effective | Pro: people able to act in timely and appropriate manner<br>Con: constraints to action remain e.g. lack of capacity, resources |
| | | People understand and have capacity to act on climate information | Pro: people able to act in timely and appropriate manner |
| | | Information transmitted in local languages by multiple media | Con: stakeholders do not know how to use information; assumes stakeholders access information – they listen/ read, understand and then use information |
| | | Early warning information combined with extension advice on appropriate action | Pro: enables people to act in timely and effective manner<br>Con: constraints to action remain |
| | | Climate info tailored to specific local needs | Pro: enable appropriate action<br>Con: stakeholders do not know how to use information |
| | | Climate information translated into useful information and advice for farmers | Pro: enable appropriate action<br>Con: constraints to action remain |
| | | farmers trained in appropriate technology e.g. rain gauges, and use of sowing calendars | Pro: capacity building and empowering, long term and sustainable<br>Con: obsolescence? Accuracy? Access to technology; farmers can afford to and know how to maintain technology |
| | | hydrological, meteorological, agricultural and pest conditions bulletins provided to farmers | Pro: enable appropriate action<br>Con: stakeholders do not know how to use information |
| | | farmers receive regular weather forecasts | Pro: enable appropriate action<br>Con: constraints to action remain |
| | | farmer participation and capacity building | Pro: long term, sustainable |
| | | demand from non-participant communities | Pro: long term, sustainable; good indicator of appropriateness of intervention<br>Con: resources available to roll-out/ scale-up? Intervention appropriate in another context? |

| | | | |
|---|---|---|---|
| | | incomes increased | Pro: clear measure of welfare impact<br>Con: do not measure resource accessibility; : will give falsely negative view of adaptation success if the 'best' outcome in climate change context is stable incomes |

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