Rapid Scoping of Climate Change Indicator Methodologies

Summary Report

Nick Brooks[1] and John Rowley[2]

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[1] Garama 3C Ltd., The Old Reading Room, 5 Recorder Road, Norwich NR1 1NR., nb@garama.co.uk.

[2] John Q Rowley, 347 Meadow Lane, Oxford, OX4 4BL, johnqrowley@gmail.com

1. Introduction

1.1 Background

This report details the results of an assignment to perform a rapid scoping of indicator methodologies for adaptation, and to develop draft *thematic indicators* to assess the efficacy of spending on climate change adaptation (CCA) in the context of the International Climate Fund (ICF). The assignment was commissioned by DFID and managed by Harewell International Ltd. See Box 1 for a summary of the terms of reference (ToR) of the assignment.

Box 1. Context and Terms of Reference (ToR)

This assignment was commissioned to support the monitoring and evaluation (M&E) of climate change interventions in the context of the UK's £2.9 billion International Climate Fund (ICF), managed jointly by DECC, Defra and DFID. DFID's M&E approach addresses the key issues of accountability, learning and value for money. DFID has developed a Theory of Change for Adaptation, which links adaptation with the development of knowledge, capacity, institutions and evidence, the scaled-up delivery of adaptation programmes in key sectors, and support for national and international architecture to delver finance. The ultimate aim of adaptation is to prepare and equip vulnerable people in poor countries to respond effectively to existing climate variability and the impacts of climate change.

   The purpose of the assignment was to **strengthening and develop the KPIs [key performance indicators] relevant for adaptation and suggest second tier [thematic] indicators**. Specifically, new 2nd tier indicators were to be developed for the following three key areas:
   1. planning processes, focusing on qualitative improvements to planning processes including considerations of uncertainty, extent to which plans are budgeted and financed, integration across institutions (e.g. ministries), participation and decentralisation.
   2. assets protected, including extent to which different types of assets have been protected against a baseline
   3. knowledge and decision making, including use of climate science and new patterns of decision-making.

   Pros and cons of each indicator were to be considered, relating to factors such as ease of use, robustness, consensus, and ease of aggregation. Attribution and contribution issues were to be addressed. It was suggested in the ToR that scocrecard approaches to indicators should be considered.

   It was specified in the ToR that the development of these indicators should be supported by a short review of indicators, i.e. in other emerging results and evaluation frameworks including DFID methodologies, results frameworks for the CIFs and MDBs.

The thematic indicators (TIs) developed here are intended to support Key Performance Indicators (KPIs) for the ICF, and represent the following three key results areas or "domains":

   1. Planning and/or adaptive capacity
   2. Resilience and/or assets protected
   3. Knowledge and information to support decision-making

Development of the TIs is guided by DFID's Theory of Change for Adaptation (ToCA), in which development **activities** result in **outputs** at the international, national and

institutional levels. These outputs involve support for the delivery of climate finance, the building knowledge, capacity and evidence, and the development, piloting and scaling up of adaptation measures. The **outcome** of improved knowledge, capacity, evidence, financing mechanisms, and adaptation piloting (and hence learning) is that climate change is explicitly addressed in planning and investment by donors and multilateral development banks (MDBs). Ultimately, this results in positive **impacts**, with vulnerable people in poor countries being better prepared and equipped to respond effectively to risks associated with climate variability and change.

The TIs are intended to represent a mixture of outcomes and outputs, and some of the indicators developed here also address impacts. There is some overlap between TIs and KPIs, both of which represent a mixture of outputs and outcomes. The principle distinction between TIs and KPIs is that, whereas KPIs are cross-sectoral and applied universally across all DFID climate change / ICF programmes, the thematic indicators will be relevant to a subset of these programmes focusing on adaptation (Figure 1).
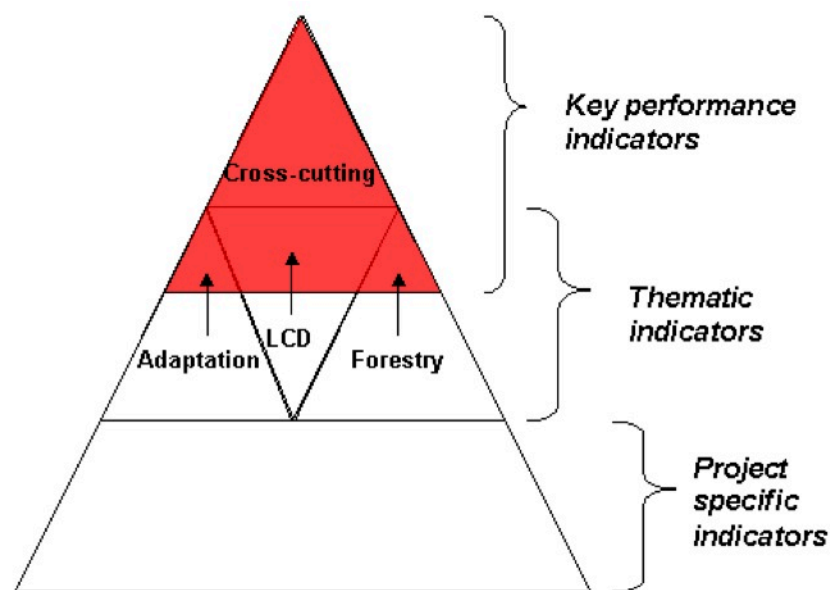
Figure 1. Hierarchy of ICF indicators. KPIs include indicators that are cross-cutting across all sectors and indicators that relate to specific sectors (forestry, adaptation, low-carbon development, etc). TIs may represent all programmes and projects within a specific sector, or a subset of these programmes and projects.

1.2 Reporting and responding to the ToR

At the beginning of the assignment, the ToR were discussed in more detail with DFID staff. Throughout the assignment, close contact was maintained with DFID to discuss emerging issues. As a result, agreed outputs evolved somewhat from those specified in the original ToR. For example, the development of indicators relating to the involvement of the private sector ultimately was not pursued, as it was concluded that this could be assessed through standard measures of factors such as proportion of funding leveraged from private sector, and that there was little "climate change specificity" here.

There was considerable discussion of how to assess assets protected. It was concluded that, in order to do this in a way that was broadly applicable across contexts, the best approach would be to assess numbers of people becoming les vulnerable, or more resilient, as a result of climate change interventions. This would be based on the

identification of either (i) locally contextual proxies for vulnerability, which would be used to score households or individuals on a scale of 1-5, so that improvements in resilience could be tracked through changes in scores, or (ii) a participatory well-being approach, in which numbers of people in a community in different well-being categories are identified, applied in the context of climate resilience/vulnerability. Vulnerability/resilience, and well-being defined in resilience contexts, will depend to a large extent on access to certain assets. These approaches enable such assets to be addressed without the need to define "universal" indicators related to assets/vulnerability, which would be extremely problematic due to the highly contextual nature of vulnerability and the high diversity in relevant assets, which makes generalisation extremely difficult. Assets protected (e.g. in terms of the value of assets that can be quantified or monetised) might be assessed in certain contexts, but such assessment is outside the scope of the general indicators described in this report.

Like private sector involvement, decentralisation is a non-climate specific issue, and can be assessed through non-climate related indicators. Nonetheless, an indicator of participation (with some climate specificity) has been developed that addresses local involvement in decision-making and, by extension, decentralisation, albeit indirectly.

The issues identified in the ToR relating to planning and knowledge have been addressed through the development of scorecard indicators. New patterns of decision-making are addressed in indicators relating to the integration of climate change into planning, and decision-making under uncertainty. These address the extent to which decision-making is pursued in the context of awareness of climate-related constraints and opportunities – i.e. development is build around climatic and environmental contexts, rather than pursued with little or no consideration of these contexts that is compensated for through attempts to identify "additional" measures (with additional costs) to "climate proof" business-as-usual development that may in some cases be unsustainable/unviable under future climate conditions.

Attribution and contribution issues are addressed through the development of scorecard-based output and outcome indicators respectively. The former are applied directly to a programme, while the latter are applied to the system(s) targeted by the programme(s). Some of the indicators presented here can be used as both output and outcome indicators, while others are intended (in their present form) to be applied only as outcome indicators. These outcome-only indicators are complemented by some suggestions for numeric output indicators in Annex 2. The resilience/assets indicators developed here are impact indicators.

Some of the scorecard indicators presented here may be used as KPIs. These are the indicators that may be applied to both adaptation and mitigation/low-carbon development (LCD) programmes/contexts. While the majority of the scorecard (planning and knowledge) indicators are of this kind, which indicators should be used as KPIs remains a matter for discussion, based on the suitability of outcome/contribution indicators as KPIs, and the details of the individual indicators. KPIs are discussed in more detail below.

This report has two purposes:

1. To provide a brief review of emerging climate change adaptation results frameworks and indicators, and

2. To present a set of draft indicators developed as part of the rapid scoping exercise, which can be used to evaluate ICF programmes and their results. Some

of these indicators are TIs, while some may be used as KPIs. Each indicator is described in a separate methodological note, submitted separately to this report.

2. Review of adaptation results frameworks

2.1 Overview

As the attention of donor governments, Multilateral Development Banks (MDBs) and other development agencies and institutions increasingly focuses on adaptation, there is a growing need for results frameworks that enable donors and development organisations to assess the efficacy of adaptation interventions. These results frameworks are currently emerging in the context of climate funds such as the Adaptation Fund (AF), the Pilot Programme on Climate Resilience (PPCR), and the Green Climate Fund (GCF). These frameworks are intended specifically to assess the efficacy of adaptation funding and adaptation interventions (with the GCF, for which results frameworks are currently in development, also addressing mitigation).

Other frameworks are being developed with somewhat different purposes. For example, the WRI NAC framework has been designed to help governments evaluate their own adaptive capacity, while the CARE Framework of Milestones and Indicators for Community Based Adaptation provides general guidance on the conditions that need to be met for effective adaptation and resilience building at the local level (Box 2).

As part of the work described in this report, over 50 frameworks, reports, papers and other documents addressing the evaluation of adaptation and related activities (e.g. resilience-building, DRR) were consulted (Annex 1). The general conclusions of this review, particularly as related to indicators and indicator domains or categories, are described below, following a more detailed discussion of the PPCR, AF and DFID-supported TAMD frameworks. These frameworks are given particular attention as they are intended to serve a similar purpose, namely that of assessing the efficacy and value for money of adaptation spending under the umbrella of large climate funds, and are therefore of particular interest in the context of the ICF.

Box 2. The WRI and CARE frameworks

1. The WRI National Adaptive Capacity framework
The evaluation of adaptation planning at the national level is addressed in the WRI publication *Ready or Not: Assessing Institutional Aspects of National Capacity for Climate Change Adaptation* (Dixit et al., 2012). This describes a National Adaptive Capacity (NAC) framework which aims to help governments "bring institutional capacity development into their adaptation processes." (Dixit et al., 2012: 5). The NAC framework "evaluates national institutions' performance of five key functions critical to adaptation: assessment, prioritization, coordination, information management, and climate risk management", to indicate a country's overall adaptive capacity (Dixit et al., 2012: 5). In the NAC framework, each function is evaluated through a number of questions, each of which is linked with "elements to look for". The evaluation is qualitative and does not employ (or lend itself to) numeric indicators or results based on the placing of countries in pre-defined categories (e.g. scores from 1-5, grading from A to C, etc). While it captures the key elements of national level adaptive capacity, it serves a different purpose to the proposed ICF indicators, being targeted at governments that want to evaluate and build national-level capacity, rather than donors who want to assess the impacts of their interventions. Nonetheless, it provides useful background and context for the development of donor-driven results

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> frameworks.
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> **2. The CARE Framework of Milestones and Indicators for Community Based Adaptation**
> The CARE framework identifies numerous milestones and indicators at the household/individual level (66 indicators), the local government/community level (69 indicators), and the national level (60 indicators). These milestones and indicators are grouped into the following categories: climate-resilient livelihoods, disaster risk reduction, local capacity development, and assessing underlying causes of vulnerability.

2.2 The DFID-supported TAMD framework

DFID is supporting the development of the *Tracking Adaptation and Measuring Development* or TAMD adaptation results framework, which seeks to provide a flexible framework for assessing capacities for effective climate risk management at the institutional level, as well as development and adaptation outcomes "on the ground". The TAMD framework is described in the first TAMD Working Paper (Brooks et al. 2011), and will be piloted between mid-2012 and late 2014, through a series of country pilots which will follow a phase of further methodological development in mid 2012. This pilot phase will provide a context within which the draft indicators presented in this rapid scoping report (described below) may be tested and refined.

2.3 Comparison between the TAMD, PPCR and AF frameworks

Given their purpose as frameworks for assessing the efficacy of adaptation spending, the PPCR and AF frameworks are of particular interest in the context of the work described in this report and the development of the TAMD framework, which aim to develop frameworks and indicators for assessing value for money under the ICF. Brooks et al. (2011) compare the proposed TAMD framework with the AF and PPCR results frameworks.

The PPCR framework groups results into three categories: (i) transformative impacts, (ii) catalytic replication outcomes, and (iii) PPCR outcomes and outputs (the largest category). Transformative impacts (category i) are associated with indicators based on standard development indicators, including environmental indicators such as those relating to land degradation, with a focus on areas most affected by climate change. Catalytic replication outcomes (category ii) focus on institutional and investment outcomes of the PPCR. PPCR outcomes and outputs (category iii) include institutional and investment outcomes, but also encompass measures of development outcomes in the face of climate change.

The AF indicators share a number of similarities with those of the PPCR framework, addressing issues such as the extent of integration of adaptation and resilience-building measures into national development strategies, policies introduced or adjusted to address climate change risks, and so on. However, there is a greater explicit emphasis on the impacts of adaptation on populations and the systems on which they depend (e.g. ecosystems, health systems, infrastructure), assessed through quantitative indicators referring to factors such as numbers of projects, numbers of institutions targeted/affected by interventions, numbers of adaptation actions takes, and number of assets strengthened.

Vulnerability/resilience of populations is addressed by three   of the AF indicato
households with more secure access to livelihood assets, % of population with sustained

climate-resilient livelihoods, and number of households with more secure access to livelihood assets. The first and last of these measure the same outcome in different ways, and all are concerned with the livelihood aspects of vulnerability. The additional guidance on these indicators suggests that they are defined in more detail at the project level, and that changes in access are measured on a 1-5 scale, echoing the approach to assessing (changes in) vulnerability proposed in the TAMD framework and developed under this rapid scoping review in the methodological notes for resilience/assets.

2.3.1 Shortcomings of the PPCR and AF frameworks

Neither the PPCR nor the AF framework addresses the problem of using development outcome indicators to evaluate the success of adaptation against a background of changing climate risks. While it might be assumed that adaptation is "successful" if it keeps development "on track", adaptation interventions might ameliorate the impacts of climate change without completely neutralizing them. In such cases, a focus solely on development outcomes might suggest that an intervention has failed, when it has in fact served a useful role in offsetting *some*, but not *all* of the impacts of climate change. In other words, development outcome indicators somehow need to be "normalized" to take account of evolving climate risk baselines, and it must be recognized that adaptation will not always be perfect (and may be "palliative", at least until there is sufficient knowledge to strengthening adaptation through learning).

A second problem is the timescales associated with some climate change impacts and adaptation responses, which may be longer than those associated with development/adaptation projects or programmes, meaning that impacts cannot be assessed on the necessary timescales through the use of development outcome data (even without considering the problems of "normalization" discussed above).

The PPCR framework alludes (somewhat indirectly) to the problem of changing risk baselines, but simply indicates that target and baseline columns in the framework are left blank, and "can only be filled in close cooperation with the MDBs and … country teams." The PPCR framework also recognizes the timescale problem, and states that "true impact reporting is probably not possible for a significant time span (10-14 years)", but does not propose any way of addressing this issue. The AF framework does not address these issues at all, and both frameworks exhibit a heavy reliance standard development indicators. While they mention vulnerability assessments, they do not acknowledge the potential of more targeted, climate-specific vulnerability indicators to address both the timescale and "normalisation" issues.

Many of the indicators identified in the PPCR and AF frameworks are poorly defined, and it is not clear how some of these indicators will be measured/operationalized. There is a tendency to focus on quantitative, "universal", or "off-the-shelf" indicators (particularly in the AF), which in themselves may yield little information about adaptation or the extent to which climate risks have been reduced. Comprehensive Theories of Change (ToCs) also appear to be lacking. While the PPCR framework includes a category labeled "transformative impacts", both frameworks (but particularly the AF) focus on actions that might more accurately be described as "addressing the adaptation deficit", a necessary but not sufficient condition for addressing the impacts of climate change (Box 3).

Box 3. Different categories of adaptation

The TAMD framework (Brooks et al., 2011) defines three different categories of adaptation, namely:
1. Addressing the "adaptation deficit", through measures intended to address and reduce risks and impacts associated with existing (albeit evolving) climate variability.
2. "Climate proofing" of existing or planned development, in which measures are identified and implemented to "protect" business-as-usual development and existing systems from incremental changes in existing risks (e.g. intensification of current climate extremes).
3. "Transformational adaptation", in which existing systems and/or practices that are unsustainable or unviable under climate change are replaced with alternative systems or practices (rather than being "climate proofed", where this is not an option because of limits to the ability of existing systems to (be) adapt(ed) to climate change).

2.3.2 Use of vulnerability indicators to assess programme impacts

If the factors that make people vulnerable (or, conversely, resilient) to climate hazards and risks can be identified, these might be represented using indicators of vulnerability/resilience that provide a "snapshot" of people's susceptibility to climate change impacts, without the need to "wait" for climate risks to unfold. This addresses the issue of the long timescale associated with climate change and adaptation outcomes. Vulnerability/resilience indicators also provide an "indirect" way of assessing the impacts of adaptation interventions without needing to normalize development outcome data. Of course, to achieve this, vulnerability/resilience indicators need to be informed by a sound contextual understanding of the drivers of vulnerability, the factors that make people resilient, and good, empirically-grounded ToCs. The use of vulnerability/resilience indicators in conjunction with development outcome data represents a means of developing a more nuanced picture of the success of adaptation interventions than does a reliance on standard development indicators such as those used in the PPCR and AF frameworks. The TAMD framework explicitly proposes using vulnerability indicators in this way, complemented by development indicators and linked with institutional capacity building through ToCs that address the relationships between development/adaptation outcomes "on the ground" and higher-level institutional capacity development.

2.4 Other frameworks and indicators

2.4.1 Development of new frameworks

The TAMD, PPCR and AF frameworks are being joined by many competing models with many agencies working on ways to assess adaptation. The work is designed to serve a range of different purposes including the need to assess programs and different situations and to assess the impact of on-going programs. The different purposes of the different frameworks mean that the type and style of indicators that are proposed cannot be easily interchanged or mixed as they are assessing different things even when they are in the same domain.

Clearly, LCD overlaps strongly with CCA and the indicators proposed contain many of the same key areas. The LCD report by PWC and TI-UP (March 2012) describes 28 candidate indicators and recommends reducing this number to about 20. As elsewhere there is an overt realisation that the indicators overlap and may influence each other. Eighteen currently describe four outputs, then at outcome level (seven indicators) and impact (three indicators) which are defined in a logframe which mirrors the ToC. In

fact, the logframe like the ToC has logic links that are not yet tightly defined so the range of possible interpretations of chains of impact is large. This is not a negative criticism but an observation on the current status of the work. There are very long impact chains that operate of very long periods of time and might be influenced by a very large number of variables and a single ToC might be impossible to define in any detail. A ToC that allows flexible interpretation of probably causal links is necessarily vague and a logframe built on it would also show apparent weaknesses in plausible causal connections.

The indicators are defined for two different "levels": 1. results occurring in all ICF target countries that might be due to any actors and 2. results occurring in priority countries as a result of ICF projects. Multiple criteria analysis is applied to all indicators which are also assessed for their level of attribution to ICF work and by the quality and applicability of data that is likely to be available.

LCD is interesting to this quick scoping study mostly for how it differs from similar attempts to identify and describe indicators of successful adaptation. The LCD work takes on an additional requirement for evidence to demonstrate that LCD is viable whereas adaptation is presumed to be a good. The use of health data relating to indoor smoke pollution and access to electricity represent imaginative partial proxies for reducing GHG production. There is greater emphasis on the involvement of the private sector and the availability of funding to drive LCD that appears in work on adaptation.

On capacity development, where there is strong overlap with adaptation indicators, there is more focus on institutional values and issues of incentives, leadership and vision. These qualities are also made clear in the UKCIP report and seem to emerge when the focus is on what makes institutions work rather than more conventional capacity building approaches.

GIZ appears to have started early on work in M&E on CC adaptation but has not devised new models or systems but has encouraged staff and partners to develop good M&E systems from first principles taking CC issues into consideration. It has provided training material with illustrative indicators and exercises to lead users to design robust systems. Making Adaptation Count[3] makes a number of key points about good M&E and leads users to design a system through analyses of the context; identifying contributions; developing an adaptation hypothesis and a ToC. It then arrives at design of indicators and baselines with illustrations from real case material. The issues it highlights includes the tension created by long and short timelines; high levels of multiple uncertainties; competing definitions of adaptation effectiveness; the need for counterfactuals and the cross-sectoral nature of the issues.

Interesting comments in *Making Adaptation Count* include the observations: that no one system or set of indicators will work across adaptation interventions; that indicators are likely to change over time (this is partly due to the long time scales in CC work); and the tension in systems over creating top-down or bottom-up indicators. This last point refers to earlier practice of developing indicators at community level with participants which is of interest to our proposal of indicators developed from participatory interview tools. There is also more support for the importance of making assumptions clear and explicit in developing a ToC in the uncertainties surrounding adaptation.

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[3] GIZ and WRI, 2011, Making Adaptation Count, Concepts and Options for Monitoring and Evaluation of Climate Change Adaptation. www.wri.org/publication/making-adaptation-count

There is a shared awareness in the wider literature that monitoring CCA overlaps strongly with existing areas of monitoring of development work and DRR, and there is also a common desire to use these overlaps creatively. There is a sense of a race to create the best CCA indicators and the risk of producing many competing systems. Even during the short time of this contract new material has been produced and any review is likely to be out-of-date before it is published.

Some of the key differences between monitoring CCA and other areas of development work are acknowledged. For example, the lack of agreed metrics (UNFCCC) and uncertainties over how to accommodate the longer time lines that climate work requires and how to develop baselines (OECD). Some sources argue that there is still a lack of consensus on what would constitute success in adaptation to climate change. In many cases the important differences between assessing CCA and conventional development work (including capacity building and advocacy and policy influencing) are not made explicit. The same applies to the differences between DRR and CCA. CCA work benefits from an injection of uncertainty although how to deal with uncertainty is often not addressed directly.

There is a tension in developing CCA indicators between being too prescriptive and specific and being too vague and open-ended. In the first case, there is the danger of defining indicators that are not locally relevant or which become irrelevant as the situation changes. At the other extreme, one might not define the indicator sufficiently well and leave too much methodological work (including the content of the indicator and what is actually being assessed or measured) to the end user for the indicator to be of any use at all.

2.4.2 Theories of change

There have been some important attempts to create theories of change (ToCs) for CCA, although most frameworks reviewed as part of this scoping study seen do not contain a specific ToC. (This links back to the apparent absence of explicit definitions of what makes CCA different). The DFID ToC is somewhat hard to link to program work as most of the change processes are not linked to the agency that might be carrying them out. Proper integration of climate change considerations in planning appears to be too high in the chain of results. Oxfam GB has produced a simple ToC which links CCA and DRR. It helpfully identifies conditions under which people might be able to carry out CCA activities and program activities that contribute to those conditions.

A review of a range of DFID programme logframes identifies a number of consistent activities in work on adaptation to climate change. Indicators are used to generate results in terms of numbers of people who are more resilient, less vulnerable, have started using particular techniques or are taking part in climate resilient initiatives. These indicators appear in different levels in some logframes but are included at impact level in most received support like training or have been exposed to new methods, technologies and increased livelihood options. Institutional capacity being improved and increased funding are also make contributions to achieving the aim of increasing numbers of resilient people.

The impact flow diagram in Figure 2 represents a simple summary of the proposed changes in the logframes examined. The diagram brings out two types of knowledge that could be monitored. The first is a general awareness and understanding of climate change and the second is locally specific and potentially useful knowledge.
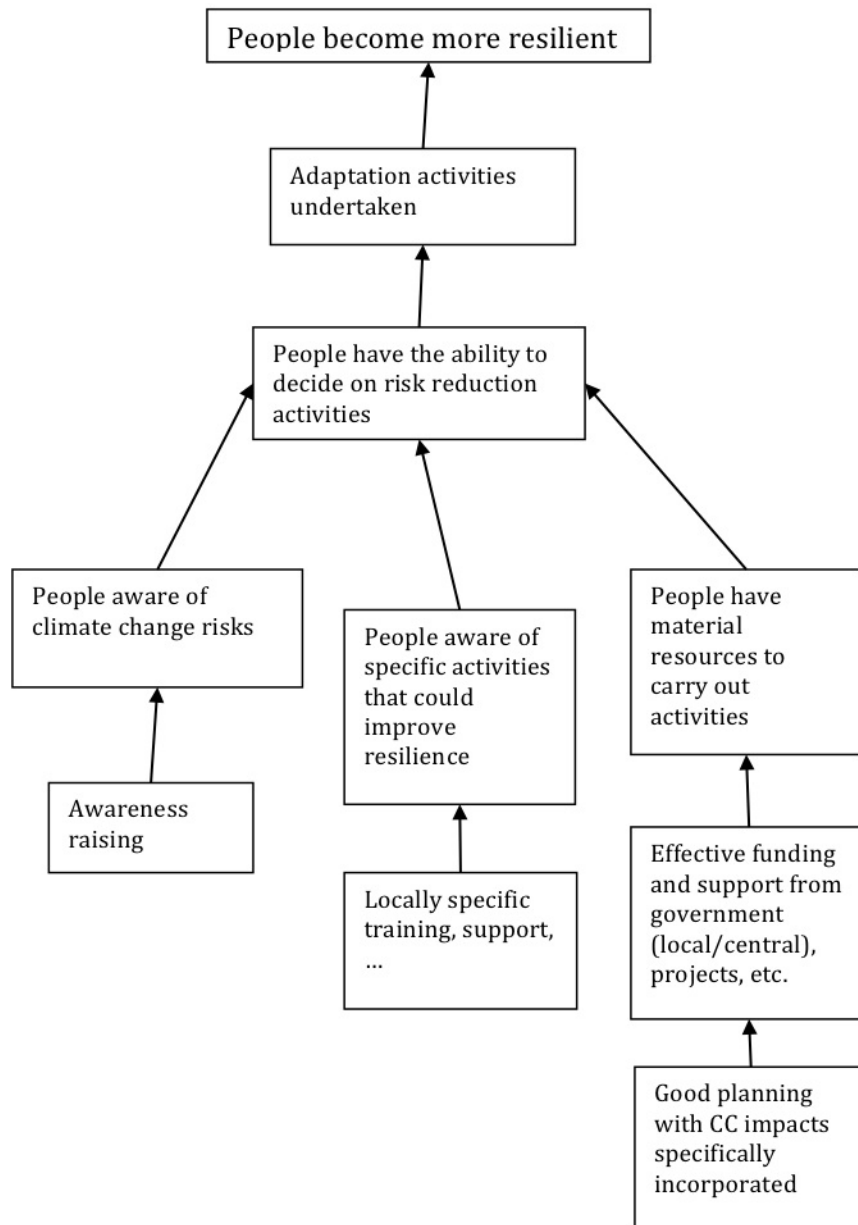
Figure 2. ToC for climate change knowledge and adaptation.

People also need other resources to make use of the knowledge so that they can change some elements in their livelihoods. The diagram also points out that being able to change does not necessarily lead to changes. This idea is partially captured in the Assumption in the overall DFID ToC between Outcome and Impact "*vulnerable people, regions and countries identified and these countries [4] demonstrate willingness to incorporate climate impacts in their decision making.*"

Added to the diagram in the bottom right corner is the Outcome from the main DFID ToC for Adaptation in which planning and investments are improved by having climate change impacts specifically incorporated. The improved planning should make available funding and other support for the changes in livelihoods that are suggested in the programme logframes. In this way, the overall adaptation Outcome can be seen to

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[4] The sense of this statement is clear but the reification of "country" may not help identify the key people whose willingness is crucial to create change.

be a contribution at a relatively low level, perhaps an Output, to the impact that comes from people changing their behaviour.

So although improved planning and investment might be an Outcome or even an Impact for a programme that targets institutional competencies it is a lower level achievement in the results hierarchy that would lead to impact on climate change adaptation and people becoming more resilient.

2.4.3 Key indicator domains

The frameworks are mostly based on the following domains, although most acknowledge that these do not represent discrete/independent areas of enquiry, but overlap and influence each other.

Knowledge
Knowledge is mentioned in all the frameworks examined here. It is sometimes broken down into a general level of awareness and specific knowledge of local risks and potential adaptive behaviour or activities. This follows from similar work done in DRR where there is a more general assumption that the risks are fairly well-known and the time-frame is much shorter.

In some frameworks there are suggestions that the ability to collect, analyse and disseminate information should be assessed as well as the current capacity to access information being provided by other sources.

All frameworks mention being able to assess levels of awareness of CC. Other indicators include: having access to information; being able to describe trends; learning from experience; learning from elsewhere; dissemination of information; analyses of information; systems for updating information and having budgets and other resources dedicated to information management.

Institutional capacity
Institutional capacity and specifically the capacity to plan for CC are mentioned in all frameworks. UKCIP (2010) published a review of 20 tools for assessing the adaptive capacity of institutions and most of the characteristics that are examined in those methods appear in the indicators proposed in the frameworks we have examined. However, the need to examine adaptive capacity (what makes a well adapting institution) is often lost in the assessments of basic capacity to perform institutional tasks as if climate change were a new sector rather than a new approach.

Indicators include: awareness of staff; existence of plans; plans and strategies address CC; organisational structures and links to different institutions; access to information and evidence; participation and engagement with local sources; configuration of institutional power relations and the ability to coordinate and the availability of dedicated resources to improve performance on CC issues. There is a focus on connectedness of different departments of government and different levels of governments (national, provincial, local etc.). This is an important area for CC work but there are few indicators of what constitutes good levels of connections.

Some of the proposed indicators are made more opaque through the use of phrases like "climate smart" or "climate proofed", without specific definitions of what these terms mean.

Some indicators describe the desirable state of decisions and policy being based on good evidence, and whilst it is clear that this is what should be assessed, it is not immediately obvious that indicators like the mention of evidence in documents demonstrates achievement. There are indicators on the existence of appropriate policy and legal frameworks which are probably important building blocks of effective CCA, but like the DFID focus on the integration of CC into planning the changes seem a long way from impact.

Some frameworks separate financial investment from other aspects of institutional capacity and make a specific mention of the provision of new money which is possibly easy to observe but not necessarily an indicator that could be used repeatedly.

Risk reduction

There are many areas of indicators for reducing the risks run by people at community level and these are expressed in different terms including: vulnerability assessments; increasing the capacity to withstand CC impacts and raising adaptive capacity of individuals and communities. This is a massively important area as it represents the focus on impact level. There is some confusion and overlap in language most importantly around use of vulnerability and resilience.

There are a number of approaches to assessing adaptive capacity at community level. Some approaches focus on livelihoods and some use household economics. There are some descriptions of reducing vulnerability by increasing the value and the resilience of the ecosystems upon which people's livelihoods depend.

The focus on livelihoods reinvigorates an approach based on different assets (or capitals) from the late 1990s. There is a widespread acceptance that resilience is increased by diversification of livelihoods. There are also common descriptions of strengthening the Assets that are vulnerable to CC. This is important because it links directly to the declared aims of trying to make livelihoods more resilient so that impact could eventually be quantified in terms of assets protected or not damaged/lost.

ACCRA describes five elements of adaptive capacity which unusually isolates Innovation as a separate component. This is helpful in drawing attention to the capacities necessary to promote innovation even though it may be difficult to assess. ACCRA also concludes that genuine participation is an essential approach to working at community level complaining that much that is done in the name of participation is hollow and does not change power relations in development initiatives.

A range of new household economic models are being created in order to bring greater focus on to the key attributes of resilience to climate change in terms of resilience of the different components of household strategies and features such as innovation. In most cases the different categorisation of dimensions of resilience can be mapped on the five capitals (or six assets) of earlier livelihoods work.

Preparedness is becoming less common as a separate indicator domain (as it has been in DRR) and it is more common to see preparedness as part of institutional capacity.

2.4.4 Models designed for different purposes

Impact assessment

The mechanisms developed in indicators reflect the different purposes for which they have been designed. There is a general need to provide global aggregated impact

assessments. For this reason many indicators are made up of dimensionless scores. The indicator methods provide simple scoring charts or, in some cases, scoring methods with detailed descriptions of each level that defines a different score. In this way, numbers of people who have improved their situation in radically different situation can be added so that the agency can report on its global impact.

Describing a situation

Some methods for describing a situation appear like dimensionless indicators but which contain a number of different components. In Characteristics of a Disaster-Resilient Community, Twigg (2007) proposes a scale which contains a number of components which remain consistent through some levels (degrees of awareness, motivation and activities) and are replaced by other descriptors in the highest levels (Table 1). It could be argued that this makes it easier for program staff to assign a level to a situation that they are describing. If the descriptions are good then it would help the same staff with decisions about selection of interventions and summation remains possible as communities can be scored on progress made between the levels leading to an aggregate indicator of "*x communities progressing by 1 or more levels*".

Table 1. Characteristics of a Disaster-Resilient Community, from Twigg (2007).

Level 1	Little awareness of the issue(s) or motivation to address them. Actions limited to crisis response.
Level 2	Awareness of the issue(s) and willingness to address them. Capacity to act (knowledge and skills, human, material and other resources) remains limited. Interventions tend to be one-off, piecemeal and short-term.
Level 3	Development and implementation of solutions. Capacity to act is improved and substantial. Interventions are more numerous and long-term.
Level 4	Coherence and integration. Interventions are extensive, covering all main aspects of the problem, and they are linked within a coherent long-term strategy.
Level 5	A 'culture of safety' exists among all stakeholders, where DRR is embedded in all relevant policy, planning, practice, attitudes and behaviour.

2.4.5 Other issues in framing indicators

Levels

The various frameworks reviewed describe indicators that are relevant at different level (i.e. from very local to national or higher). For example, the CARE approach uses three levels: household, local and national levels. IDS makes use of five levels (International; National; Programme/Sectoral; Project/Local and Household), and DFID (defining Disaster Resilience) uses four (Global/regional; National; municipal/local and Community/household).

The literature review carried out for this scoping exercise was designed to support the development of new candidate indicators in the three main domains; planning, knowledge and resilience. It was not designed as a review of the state of knowledge or development of CCA thinking more broadly.

General issues

The review of other frameworks and the wider literature highlighted a number of issues, either explicitly acknowledged in multiple sources, or apparent from the comparisons of these sources with each other. Table 2 summarises these issues.

Table 2. Common issues emerging from the review and comparison of results and indicator frameworks. Numbers in brackets refer to numbers of reference in Annex 1.

Common issues in results & indicator frameworks	Implications for development of indicators
There is weak consensus on what constitutes successful adaptation and there are competing definitions. There is concern that CC is broader than most cross-cutting issues and is hard to incorporate in all aspects of programme work.	There is a tendency to create more new models and frameworks in order build ideas on firm definitions and include the inter-related issues. Many contributors argue for harmonisation of indicators and sharing of approaches.
Resilience, vulnerability and risk are defined differently and there is no easy consensus on usage. Some observers (44) insist that vulnerability is not the inverse of resilience although that usage is common. Lack of definition of the unit exhibiting resilience makes it difficult to develop indicators.	Vulnerability has a long history and usage is associated with specific tools. Resilience has stronger usage in risk reduction approaches. Indicators sometimes make clear how the concepts are being used. Define who or what is resilient. Indicators tend to focus on numbers of people who are taking part in risk reduction activities or abandoning more risky activities. Some call for work on underlying reasons for vulnerability and baseline assessments of vulnerability or risk. There are questions over how to assess people's appreciation of risk to CC impacts and therefore changes in their risk assessments.
Theories of change contain long and uncertain chains of impact over long time scales and depend on important assumptions. Causal links appear weak. The different time scales of CC impacts and programme funding represent a serious issue for M&E.	Models and frameworks attempt to include a wide range of variables and processes that influence adaptive capacity and sustainable livelihoods. Indicators could be developed on the different elements of the models; for example in changes in the components of livelihoods (assets, capitals, etc.)
Real and credible counterfactuals are not easily developed; comparisons against Business As Usual are being replaced by comparisons against baselines and the search for "control" groups.	New models and frameworks are pushed to present a more "experimental" approach to collecting observations.
CCA is very specific to local contexts and based in multiple uncertainties. Development agencies want large scale aggregated assessments of impact for political accountability purposes.	Indicators are frequently dimensionless assessments of change indicating a direction of travel delivered in terms of numbers of people. There are significant risks in extrapolation and compilation of very different base observations.
M&E systems need to serve several different purposes: for programme management; for accountability; for learning on what works, development of knowledge.	Clarify requirements of different purposes. These distinctions are often made in introductory sections but not referred to in later sections on indicator development.
Knowledge is a key part of all frameworks and theories of change. There is some scepticism that information leads to behaviour change or the avoidance of CC risks.	Indicators include assessments of proportions of target populations who have awareness or who have attended training or awareness raising events. It is not clear that raised

There are concerns that local knowledge and understanding (especially where traditional practices in managing uncertain weather patterns appear to be pre-adaptations to CC) is neglected in favour of top-down delivery of information, partly because it may be easier to assess.	knowledge is being assessed. Some indicators focus on the generation and dissemination of information which are easier to observe. Indicators which focus on change of behaviour may underestimate levels of knowledge where people who are well-informed may be unable or unwilling to change their practices.
Political engagement is perceived as critical to successful programme work.	Indicators tend to focus on flexibility in development and modification of policies and documents legal frameworks. Reference to CC issues in documents appears a weak proxy for engagement. Both approaches may produce perverse incentives to modify documents or add references needlessly.
Indicators can be of very different format and function. There are concerns over the confusion and confounding of indicators of process and outcomes. There are fears of developing huge numbers of indicators and of very complex multi-factor indicators. Some statements described as indicators are in fact descriptions of an area where indicators are sought; e.g. "evidence of integration of lessons learned"; "people able to cope," ...	Some frameworks provide a large number of candidate indicators for wide range of factors at different levels (8, 15). These run the risk of being too prescriptive and not appropriate to specific circumstances. Others provide guidance on the development of indicators (20, 21) which runs the risk of widely different observations being impossible to consolidate.
It is seen as necessary to monitor and evaluate changes in adaptive capacity for people and institutions but it is difficult to define evidence of the ability to change or of flexibility.	There are attempts to develop indicators of updating processes as a proxy for flexibility. The quality of participation is seen as evidence of flexibility and responsiveness to changing local needs. As with knowledge, indicators of behaviour change are weak proxies for the ability to change. Some models seek to identify the assets that promote or allow flexible responses so that monitoring strengthening of those assets could be monitored. A more general monitoring of all assets being strengthened can be defended by the argument that greater assets lead to greater adaptive capacity. Participatory interviews could identify the key assets that define livelihood flexibility for local people. This would be accurate and might be very variable for different situations.
The profoundly local nature of adaptation measures has created frequent calls for better participatory practice. (ACCRA, 7, 8, 9, 23, 24, 45). This would apply to evidence of changes in adaptive capacity and resilience and capacity of institutions and political engagement.	Most contributions include the definition of indicators by central processes and their observation and scoring by outsiders. GIZ (20, 21) among others promotes the definition of indicators at project level and IIED (24) demonstrates that participatory methods can be effective. This informs our proposal of participatory well-being as a candidate method.
Capacity development is a key part of all frameworks and models for both civil society	Indicators tend to focus on activities of capacity building (e.g. numbers trained). UKCIP

and government institutions.	28 and pwc 38 describe qualities of well-adapting organisations rather than more conventional characteristics of institutional capacity.
Coordination between different actors and institutions is particularly important in adaptation to climate change. Most frameworks suggest that improved coordination should be promoted and monitored. Many formal institutions have deeply exclusive cultures (silo mentality) and coordination is not part of staff incentives.	Coordination is considered as part of institutional capacity and is included in capacity strengthening work. The creation of new links, meetings etc and partnerships may be monitored but they are proxies for genuine changes in work patterns and sharing of information. The quality of participation of an institution with local communities can be assessed including how necessary new links were identified and followed up.
Everything is connected and indicators do not stand alone but are influenced by changes in other things being monitored.	Most contributors acknowledge the interrelated nature of change and argue for acceptance of this complexity.

3. Proposed adaptation indicators for the ICF

3.1 Approach/methodology

Draft indicators have been developed for assessing the efficacy and value for money of interventions under the ICF. These have been developed for the planning/institutional capacity, assets/resilience, and knowledge domains, as requested by DFID. Development of these indicators followed the review of other frameworks and indicators in which adaptation indicators from a variety of sources were compared and clustered into groups containing indicators with a similar purpose (see above). This indicator clustering resulted in an expanded "long-list" of indicators which informed the selection and design of the indicators under the above three domains (Annex 2).

The remit of this work was to develop up to around 12 indicators, across all three domains. These indicators need to be straightforward to implement, based on data that can be readily obtained, and sufficiently versatile to be applied in different contexts. For example, they might be used to assess the performance of individual programmes, or to track improvements in planning, resilience and knowledge resulting from multiple programmes. For the latter purpose, indicators might be used to evaluate the performance of the systems targeted by ICF programmes, such as national planning systems across multiple sectors, individual sectors or ministries, or other institutions.

While the entry point for the development of these indicators is DFID's ToC for Adaptation, DFID requested that, where possible, indicators should be sufficiently general that they may also be applied to low-carbon development (LCD) initiatives/programmes under the ICF. This is particularly important for indicators to be used as KPIs.

A variety of approaches to indicator development were discussed with DFID staff. Consultations were held with staff from CED, CHASE, the Africa Regional Department, the India Country Office, the Bangladesh County Office, and DFID Caribbean. Consultations were carried out using a combination of face-to-face meetings and video-/tele-conferencing from Palace Street.

Possible approaches included indicators based on qualitative categories (e.g. A, B C for different levels of performance), binary "yes/no" questions, and numerical scores. Following these discussions and the presentation of different versions of selected example indicators, the following approach was agreed:

1. Planning and knowledge indicators each based on a small number of criteria, each of which is assessed as being not met, partially met, or wholly met, in a scorecard approach. A score is assigned for each indicator based on the number of "no", "partial", and "yes" answers.

2. Resilience/assets indicators based on household and/or participatory survey data that report changes in the number of people/households in different vulnerability/resilience categories, based on context-specific criteria related to local drivers of vulnerability and the factors that make people resilient to climate hazards and risks.

These indicators are described in more detail below. In addition, each indicator is described in a methodological note, which includes guidance on how to complete the scorecard.

The indicators here will need to be subject to further review and refinement, and should be treated as "draft" indicators. It is anticipated that further opportunities for reviewing, refining and piloting these indicators will be presented by the operationalization and piloting of the TAMD framework between mid-2012 and late 2014.

3.2 Summary of indicators developed

3.2.1 Types of indicators, and attribution issues

The *planning* and *knowledge* indicators developed under this assignment are a mixture of output and outcome indicators, based on the scorecard approach (approach 1 above). They may be divided into two categories:

   i. Indicators that are sufficiently versatile to be applied either *directly to a programme*, in which case they act as *output* indicators, or to a *system* that is targeted by one or more programmes, in which case they act as *outcome* indicators.

   ii. Indicators that are intended to be applied *only* to the assessment of *target systems*, and not directly to programmes. These indicators only address *outcomes*.

Where indicators address outcomes, additional information will need to be supplied to attribute these outcomes (in the target systems) to the programmes with which assessments are concerned. This information may take the form of narrative information, testimonials, or other evidence of causal links between programme outputs and outcomes at the system level.

The outcome-only indicators (category ii above) might be complemented by numeric output indicators that can be applied directly to a programme, and that are thematically related to the criteria in the scorecards. Annex 2 suggests some possible such numeric output indicators for those planning and knowledge indicators that are otherwise represented by outcome-only scorecards.

The *resilience/assets* indicators are all impact indicators, as they seek to assess how many people experience increases in resilience and are thus "equipped to respond effectively to existing climate variability and the magnified impacts of climate change", as specified at the impact level of the DFID ToC for Adaptation.

Table 3 lists all the indicators developed under this assignment, and specifies whether they are output, outcome or impact indicators.

Outcome indicators applied to systems (as opposed to programmes) might also be used to track the treatment of climate change in planning, and the availability and use of climate change knowledge, outside of ICF contexts (e.g. in self-assessments by governments or institutions).

3.2.2 Adaptation versus mitigation, and Key Performance Indicators (KPIs)

Some of the indicators developed here may be applied in both adaptation and mitigation/low-carbon development contexts. These indicators therefore may – at least

in principle– be used as KPIs across the ICF. Table 3 identifies these potential KPIs, based on their applicability to both adaptation and LCD. Indicators that do not fall into this category are those that address the treatment of climatic uncertainty in planning (planning indicator P5 in Table 3), the use of climate information in decision-making (knowledge indicator K3 in Table 3), and the two resilience indicators (R1 and R2).

Aside from the issue of generality (i.e. across adaptation and LCD), there is the issue of whether outcome indicators that are applied to systems targeted by programmes, rather than to programmes themselves, make suitable KPIs, or whether these indicators are too demanding in terms of assessment for this purpose. If this is the case, KPIs might take the form of numeric output indicators applied directly to programmes (see Annex 2).

Table 3. Summary of characteristics of the scorecard indicators described in this report. P indicates a planning indicator, R indicates a resilience indicator, and K indicates a knowledge indicator. The numbers of the indicators in the table are the numbers given to the indicators in the methodological notes (available separately to this report). The table indicates: (i) whether the indicator is an output, outcome or impact indicator, (ii) whether the indicator is applied directly to the programme level or to the system targeted by the programme(s), (iii) whether the indicator is applied in adaptation or mitigation/LCD contexts (or both), and (iv) whether the indicator might serve as a KPI (note that indicators that might serve as KPIs are the indicators that can be applied in both adaptation and LCD contexts). Note* that indicator P3 is the same as indicator K1.

Indicator	Output	Outcome	Impact	Prog. Level	Target System	Adapt-ation	LCD	KPI
P1 Integration		X			X	X	X	X
P2 Budgeting		X			X	X	X	X
P3* Knowledge		X			X	X	X	X
P4 Participation	X	X		X	X	X	X	X
P5 Uncertainty	X	X		X	X	X		
R1 HH Survey			X		X	X		
R2 PWR			X		X	X		
K1* Institutional		X			X	X	X	X
K2 Awareness	X	X		X	X	X	X	X
K3 Climate Info.	X	X		X	X	X		

3.3 Planning/institutional capacity indicators

The planning/institutional capacity indicators are designed to assess capacity to plan for climate change. Five planning indicators have been developed, addressing:

1. The extent to which climate change is integrated into planning
2. Level of climate change knowledge and training of key planning personnel
3. Financial support for action to address climate change
4. Capacity to plan in the context of uncertainty
5. Extent and quality of participation in the planning process

These indicators are detailed in Table 4, which includes the criteria (in the form of 5 questions) that make up each indicator in the form of a scorecard.

The planning indicator scorecards (Table 4) have been designed to be as clear and straightforward as possible, while retaining sufficient generality to be used in diverse contexts. Nonetheless (and in large part because of their applicability to a range of contexts) some guidance is appropriate on the circumstances under which "NO", "PARTIAL", and "YES" answers are returned for the various criteria under each indicator. Such guidance is provided in the methodological note associated with each indicator.

3.3.1 Application of the indicators

To assess an *individual programme*, indicators 1-3 should be applied to the system targeted by the programme, at the start and end of the programme, as well as at regular intervals throughout the programme (e.g. annually, through the programme logframe). Programme performance is then measured in terms of the change in score for each of these outcome indicators, calculated as indicated in Table 4. Supporting evidence will need to be provided to make the case for attribution of improvements as measured by the indicators to programme interventions. This evidence might take the form of reports, narrative arguments or testimonials, or evidence that specific outcomes may be attributed to (e.g.) programme finance or specific programme elements/interventions.

Annex 2 presents some possible numeric output indicators which might substitute for or complement scorecard planning indicators 1-3. Annex 2 also discusses some of the issues that would need to be addressed if this approach was to be pursued.

Indicators 4-5 may be applied directly to the programme as output indicators, and/or to the target system as outcome indicators. Guidance on how to apply these indicators to either programmes or target systems is provided in the methodological notes.

To assess the *cumulative effects of multiple programmes* on a target system, the indicators should be applied to the target systems as output indicators, with assessments performed at regular intervals, while programmes are active (and possibly after programmes have finished, in order to assess the sustainability of the outcomes).

Where multiple programmes are targeting the same system and the results of a particular programme need to be assessed, assessments at the beginning, during, and at the end of that programme, targeted at the specific elements of the system on which the programme is focusing, may be carried out. These would need to be complemented by supporting evidence attributing outcomes to the programme in question, as discussed above.

The planning outcome indicators may also be used by governments or other institutions (including DFID Country Offices and other donor organisations and development agencies) to perform *self-assessments* of their capacity to address climate change, and to track improvements in this capacity.

Table 4. Planning/institutional capacity scorecard-based indicators, with criteria for calculation of indicator score. Indicators are identified as impact, outcome or output indicators, based on the framework provided by DIFD's ToC for Adaptation.

	NO	PAR-TIAL	YES
INDICATOR 1. CLIMATE CHANGE INTEGRATION INTO PLANNING *Representation of strategies to address climate change in relevant planning documents & processes* [OUTCOME INDICATOR]			
1. Is there a climate change plan or strategy set out in a dedicated strategy document and/or embedded in the principal planning documents at the level being assessed (e.g. national, sector, ministry)?			
2. Has an authoritative body been tasked with coordinating climate change planning and actions?			
3. Have specific measures to address climate change (adaptation/mitigation) been identified and funded?			
4. Are climate-relevant initiatives routinely screened for climate risks?			
5. Is there a formal climate safeguards system in place that integrates climate risk screening, climate risk assessment (where required), climate risk reduction measures (identification, prioritisation, implementation), evaluation and learning into planning?			
SCORE (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			
INDICATOR 2. BUDGETING AND FINANCE *Financial support for climate change mainstreaming & initiatives – funding available for local initiatives, locally-owned/driven* [OUTPUT INDICATOR]	NO	PAR-TIAL	YES
1. Is funding available for the piloting of measures to address climate change (e.g. adaptation, risk management, mitigation, low-carbon development)?			
2. Is funding available to roll out/support mainstreaming/integration of climate change?			
3. Do mechanisms/capacities exist for assessing the costs associated with measures to address climate change such as those identified during climate screening/risk assessment?			
4. Is funding available to cover the costs of the necessary climate change measures identified (and costed) during climate screening/risk assessment?			
5. Are actions to address climate change supported by an authoritative financial entity (e.g. at national level, Ministry of Finance)?			
SCORE (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			
INDICATOR 3. INSTITUTIONAL KNOWLEDGE *Level of knowledge and training of key personnel in climate change issues and mainstreaming processes* [OUTPUT INDICATOR]	NO	PAR-TIAL	YES
1. Does planning involve individuals with some awareness of climate change?			
2. Does planning involve individuals with formal training in climate change issues?			
3. Does planning involve individuals who have attended accredited courses on climate change, development, planning and "mainstreaming" issues?			
4. Is integration of climate change into planning overseen by individuals with in-depth knowledge of integration/mainstreaming processes?			
5. Are numbers of people with required training involved in planning processes adequate?			
SCORE (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

INDICATOR 4. PARTICIPATION *Quality of stakeholder engagement in decision-making to address climate change* [OUTPUT INDICATOR]	NO	PAR-TIAL	YES
1. Are all relevant levels of governance (national, provincial/district, local/community) represented?			
2. Are those who might be adversely impacted by climate change initiatives represented?			
3. Are those most in need of / likely to benefit from measures to address climate change represented?			
4. Are the poorest and most marginalized members of society represented?			
5. Is the participation of all the above groups sustained throughout planning and implementation (i.e. at the start, end and throughout an initiative)?			
SCORE (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			
INDICATOR 5. PLANNING UNDER UNCERTAINTY *Institutional capacity for decision-making under climatic uncertainty* [OUTPUT INDICATOR]	NO	PAR-TIAL	YES
1. Does planning (and wider climate change dialogue) incorporate the use of "envelopes of uncertainty" defined in terms of plausible ranges of key climatic parameters over relevant timescales, informed by climate projections where feasible?			
2. Does planning make use of scenario planning exercises, preferably based on "envelopes of uncertainty"?			
3. Does planning explicitly address risks associated with "maladaptation"?			
4. Is planning guided by well-developed frameworks and methodologies that address uncertainty?			
5. Do mechanisms exist for ensuring that planning guidance is updated with new information on climate change as it becomes available?			
SCORE (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

3.3.2 Key performance indicators

Planning Indicator No. 1 (integration) is the most appropriate planning KPI. To a certain extent, the criteria assessed by the other indicators are implicit in the integration indicator. For example the existence of a well-developed climate safeguards system suggests implies that high-risk initiatives are subject to climate risk assessment, which should address uncertainty. Such a safeguards system should also incorporate mechanisms to ensure adequate participation in the planning process, and implies a certain level of knowledge and financial support (necessary for the system to operate). Nonetheless, there are elements of assumption here, and the additional planning indicators add further layers of detail in assessments of planning processes, and increase confidence in assessments of planning capacity.

The key issue to be addressed here is whether an outcome indicator applied to systems targeted by programmes (rather than output indicators applied to programmes themselves) would make a practical KPI. If not, then a numeric output indicator might be developed to serve this purpose for the integration aspect of planning.

In principle, planning indicators 1-4 might all be used as KPIs for the ICF, as they are all sufficiently general to be applied to both adaptation and LCD. Issues related to the use of outcome indicators applied to target systems as KPIs, as discussed above, apply to

planning indicators 1-3. Planning indicator 4 can be applied to a programme as an output indicator as it stands.

Further consideration of which planning indicators to use as KPIs is required.

3.3.2 Adaptation versus low-carbon development

While the ability to plan under uncertainty (indicator 5) is relevant to LCD initiatives, there are aspects of planning under uncertainty that are highly specific to adaptation. Adaptation planning requires the adoption of robust measures that are viable under specific envelopes of climatic uncertainty (i.e. ranges of possible future climatic conditions), as well as flexible learning that enables strategies to be modified as new information becomes available and addresses specific issues related to vulnerability and the need to avoid maladaptation. These specificities mean that indicator 5 is targeted specifically at adaptation (and thus will not be used as a KPI).

3.4 Resilience/assets indicators

Two different indicators are proposed below for assessing numbers of people with increased resilience to climate change (which will be related to specific assets that foster resilience and reduce vulnerability to climate hazards and risks). These indicators, based on different methodologies with different resource and time requirements for data gathering, are intended to be complementary. They might be used in different contexts, depending on which methodology is most practical, feasible or appropriate given the nature of the programmes involved.

These indicators will only be appropriate for programmes that involve direct interventions at the community level, where the direct impacts of programmes on people's resilience can be assessed (as opposed to programmes involving institutional capacity building at the national or ministerial level, for example). As such, they will only apply to a subset of ICF programmes. **Nonetheless, these resilience indicators are of great importance, as they represent the only indicator proposed here that addresses *impact* as defined in the DFID ToC for Adaptation**: "vulnerable people in poor countries are prepared and equipped to respond effectively to existing climate variability and the magnified impacts of climate change." They also address the issues of timescale and changing climate risk baselines, as discussed in Sections 2.3.1 and 2.3.2 above.

3.4.1 Indicator based on household surveys

The TAMD framework (Brooks et al., 2011) proposes assessing the impacts of programmes on human populations by sampling target populations using household surveys that gather information on key variables that can be used as proxies for vulnerability. These variables will be identified through local contextual studies/surveys, and will be empirically-grounded. They will be specific to local developmental and climate risk contexts, and might include quantities such as household size or income, diversity of income sources, distance to nearest market, geographical location, etc.

Once a set of key vulnerability proxies has been identified, each household in the sample will be assigned a score of 1-5 based on its quintile ranking for each variable. For

example, if household income is selected, households whose income is in the bottom fifth of the range of household incomes will be assigned a score of 1. Those in the top fifth will be assigned a score of 5, and so on. Sampling will be carried out before, during and at the end of a programme/intervention, in order to assess how many households have improved their scores for each variable.

This approach results in a return format consisting of "number of households with reduced vulnerability/increased resilience in one or more variables". This figure can be expressed as a proportion of the sampled households, as a proportion of a target population (based on scaling up from the sample), or in absolute terms (based on scaling up from the sampled population to the target population).

"Number of households with increased resilience" (in one or more variables) can be aggregated across contexts, and across countries. The use of dimensionless scores enables comparison and aggregation across widely different contexts.

3.4.2 Indicators based on participatory surveys

We are proposing a second and very different approach to the same indicator of numbers of people who have increased their resilience by recommending the use of a participatory method, participatory well-being ranking (PWR). The method seems appropriate because it is based on detailed dialogue between local people and programme staff which will allow observations of changes in resilience and provide explanations of the assets that contribute to resilience and of the causes of changes in those assets. This complete picture can be obtained through the use of the method rather than piecemeal via different processes.

The method is much quicker than more conventional household surveys and provides a focus on the assets that are important in resilience. This is a major strength of the approach because it is normally not possible for an outsider to know in advance with certainty what the key assets will be. The method starts with an open question so that all different assets or capitals can be drawn into the assessment of resilience.

It is typical of PWR interviews to cover social issues and personal qualities and links as well as production capacities and more normal physical assets in their assessments of well-being. The breadth of issues covered is hard to achieve with more conventional survey methods.

Another key strength of the method is that identifies immediately the differences between the more and less resilient within a community. It will help programmes to improve the focus on household level and on the less resilient. It also helps people to avoid the errors of designing work as if communities were homogeneous.

The method provides information on every household in the "community" so specific differences can be identified and an automatic control group may be created where the programme intervention reaches some members of the community and not others.

Well-being ranking was used widely during the 1990s and was developed to provide more consistent results between different communities. The need to be able to assess dimensionless changes in resilience matches the outputs that the PWR provides.

Working at community[5] level

It is clear that there will be no alternative to working at household level for projects that want to monitor changes in resilience. This point seems to be confirmed by the fact that many of the DFID logframes we have seen and other assessment frameworks depend on household surveys as means of observation of milestones.

The same indicator "Number of households with increased resilience" and also numbers of people with more resilient livelihoods can be developed using well-being ranking (PWR). The method depends upon a number of skills but also a particular approach. Staff who lead community level interviews need to approach the work with a belief that they can learn from the people they are interviewing and with a style which enables them to communicate this belief and the ability to keep their own views out of the process. The quality and consistency of results obtained using PWR depend almost entirely on the skill of the facilitator.

The range of methods available for assessing resilience at household level includes: conventional household surveys, changes in relative household resilience scales; participatory well-being ranking and participatory well-being categories exercises. The methods require different levels of investment and provide different qualities of evidence which can be used as indicators. There is considerable potential for using a mix of the methods which would be complementary and reinforcing.

The methods proposed here could provide valuable indicators. The methods require effective repeated contact and good communication skills. They yield a profound understanding of local views of poverty and resilience in terms of assets, strategies and the forces that act to improve and worsen individuals' livelihoods.

The methods work well where people know each other well and have been used successfully in a wide range of circumstances in every continent. They have only limited success where people do not know each other very well; for example; in urban situations where there is a lot of population movement or in temporary camps.

A robust method
Where members of a community know each other well the separate rankings made by different informants tend to correlate very tightly[6]. Aberrant scores, where a household is ranked very differently by different informants, can usually be explained in further interviewing.

Issues with relative assessments of well-being
It may be difficult to compare over time; changes that are described between different years may be more or less important than changes described over a different period. It may also be difficult to compare between different communities. This applies to the type of change and the degree of change that are described. In fact, these issues do not necessarily prevent the indicator from delivering results in the order of numbers of people who have become more resilient to the hazards associated with climate change.

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[5] This note uses "community" and "household" as convenient words to describe larger and smaller social units although neither word is necessarily correct for any particular situation.

[6] See for example; James R. Hargreaves et al, 2007, *Assigning Poverty Lines on the Basis of Local Perceptions of Poverty. A Quantitative Analysis of Qualitative Data from Participatory Wealth Ranking in Rural South Africa.* World Development Vol 35, Nº 2, pp 212-229

The problems with relative assessments are different from the problems associated with absolute assessments[7]. The close contact developed between programme staff and community members in doing PWR provides understanding that can be used to improve consistency. The learning by programme staff on local understanding of resilience enables them to improve the consistency of observations and interpret changes in terms of impacts and attribution.

Well-being to resilience

We are proposing that the standard approach to PWR should initially be followed because it delivers detailed insight into livelihoods and local appreciation of threats and opportunities for people in different well-being categories. Once an initial ranking has been achieved it will be easy for skilled interviewers to develop analyses of resilience with the participants and eventually monitor changes.

Control groups

There may be a control group within the community if the programme intervention has been accessed by some households and not others. It should be possible to compare changes in well-being categories for those who took part in the programme with those who did not. Households who started in the same well-being category should be compared. Observed differences would be fairly robust and could be tested with non-parametric statistical tests.

If all the households being ranked have taken part in the intervention it may be appropriate to compare the programme community with one where there has been no intervention. The usual ethical issues would need to be addressed and clearance obtained. As in other studies of "control" groups, there might be resistance to giving time for no apparent gain but some communities have found the process worthwhile in itself and valued having a printed list of household heads.

Standardised well-being ranking

It is possible to develop a standardised set of observations for well-being groups based on sets of interviews across different communities. This could be developed in each particular situation and a set number of well-being categories could be established to provide simpler comparisons over time. The same standardization could be followed up in appreciation of resilience so that the focus becomes more narrow and more specific to the program needs.

3.5 Knowledge indicators

Three knowledge indicators are proposed, addressing institutional knowledge, public awareness, and the use of climate information (Table 5).

Knowledge Indicator 1 (institutional knowledge) is also used as the knowledge indicator in the planning domain (Planning Indicator 3), but is included here as there is a desire within DFID to have a distinct cluster of knowledge indicators that can stand alone while giving a comprehensive picture of this domain.

Knowledge indicator 1 is an outcome-only indicator (see discussion of planning indicators). Knowledge indicators 2 and 3 may be applied as either output (programme

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[7] See for example; Anton Simanowitz, 1999, Pushing the limits of mapping and wealth ranking, PLA Notes, Issue 34, pp 4-8, IIED, London

level) or outcome (target system level) indicators. Relevant guidance on this aspect of the indicators is provided in the methodological notes for the individual indicators.

3.5.1 Application of the indicators

The knowledge indicators take the form of scorecards (Table 5), and are structurally identical to the planning indicators. They should be applied in the same way as the planning indicators, to the systems targeted by ICF interventions (see above).

Table 5. Planning/institutional capacity scorecard-based indicators, with criteria for calculation of indicator score. Indicators are identified as impact, outcome or output indicators, based on the framework provided by DIFD's ToC for Adaptation.

	NO	PAR-TIAL	YES
INDICATOR 1. INSTITUTIONAL KNOWLEDGE (also used under Planning) *Level of knowledge and training of key personnel in climate change issues and mainstreaming processes* [OUTPUT INDICATOR]			
1. Does planning involve individuals with some awareness of climate change?			
2. Does planning involve individuals with formal training in climate change issues?			
3. Does planning involve individuals who have attended accredited courses on climate change, development, planning and "mainstreaming" issues?			
4. Is integration of climate change into planning overseen by individuals with in-depth knowledge of integration/mainstreaming processes?			
5. Are numbers of people with required training involved in planning processes adequate?			
SCORE (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			
INDICATOR 2. PUBLIC AWARENESS *Level of awareness of climate change issues, risks and responses* [OUTPUT INDICATOR]	NO	PAR-TIAL	YES
1. Stakeholders aware of climate change and its potential implications for society.			
2. Stakeholders aware of potential, available, or ongoing climate change response options.			
3. Relevant information reaching key stakeholders in climate-sensitive sectors.			
4. Institutional mandates to raise awareness of and disseminate information about climate change (risks, impacts, responses, etc).			
5. Adequate funding available for awareness raising.			
SCORE (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			
INDICATOR 3. USE OF CLIMATE INFORMATION *Extent to which climate information is (i) used to inform responses to climate change and (ii) generated, at all levels of society* [OUTPUT INDICATOR]	NO	PAR-TIAL	YES
1. Observational data available/used relating to climate trends and variability.			
2. Climate information (forecasts, projections, information on responses) readily accessible via information sharing platforms or networks.			
3. Climate information generated by foreign and international organisations (e.g. IPCC, research bodies, academic institutions) readily accessible/ used.			
4. Does the capacity to interpret and use climate information (e.g. in scenario planning, risk frameworks, vulnerability assessments) exist?			
5. Is the use of scientific information complemented by the use of local/traditional indigenous knowledge?			

SCORE (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)	

3.5.2 Key performance indicators and adaptation versus LCD

Knowledge indicator 3 is specific to adaptation, and therefore is not suitable as a KPI across all ICF programmes. However, it might be applied across all adaptation programmes in order to assess how well-grounded these programmes are in a knowledge of actual climate change hazards and risks. Knowledge indicators 1 and 2 might be used as KPIs across the ICF.

3.6 Reporting and aggregation of indicator data

3.6.1 Planning and knowledge (scorecard) indicators

Output indicators

For output indicators applied to an individual programme, overall performance may be assessed using the score as calculated retrospectively at the end of the programme, without the need for baseline data. The data reported therefore will be a score out of 10 for the programme, calculated as indicated in Tables 4 and 5. [It is recommended that scores are calculated at different stages of a programme, in order to monitor how it is performing in the area represented by the indicator.]

Aggregation of these output indicators may be carried out in a number of ways. An average score may be calculated across multiple programmes, or the number of programmes with scores above a certain value, or in different ranges (e.g. 1-3, 3-6, 7-10). Alternatively, data might be presented graphically, with number of programmes plotted on the vertical axis, against overall score (out of 10) on the horizontal axis, giving a frequency distribution of programme scores.

Outcome indicators

For outcome indicators applied to a system targeted by a single programme, outcomes will be assessed on the basis of changes in the indicator score over the lifetime of the programme (and possibly after the end of the programme, to assess sustainability of outcomes). The change in score over time spans a theoretical range of -10 to +10, but is likely to be a low positive integer (e.g. 1-5) in practice.

Where a system is targeted by multiple programmes, cumulative outcomes will be expressed in the same way, but with changes in score simply assessed on a regular (e.g. annual) basis, rather than tied to the start and end of any particular programme.

Assessment of target systems using outcome indicators might be carried out by a Country Office or its partners. Opportunities for assessment might occur during a strategic programme review (SPR) or screening of General or Sector Budget Support. In these contexts, assessment may be carried out by external consultants.

Aggregation of outcome indicators might involve reporting of the number of target systems exhibiting improvement across one or more indicators. Degree of improvement might be represented as the number of instances in which scores have increased by more than a certain amount. Graphical representation of results might involve plotting the number of instances of improvement on the vertical axis, against the actual improvement in score on the horizontal axis. This might be done for target systems however they are defined, or data might represent countries in which improvements in target systems have been identified.

3.6.2 Resilience indicators

The two resilience indicators, based on household surveys and participatory wellbeing rankings (PWR) both produce figures for numbers of people or households with increased resilience. These figures may relate to an entire population targeted by a programme (if a programme targets a small population, e.g. one or more communities). However, they are more likely to relate to a sample of a larger population targeted by a programme. In this case, aggregation may be performed by scaling the results from the sample population up to the target population, resulting in an estimated number of people with increased resilience across the target population as a whole. These numbers may be aggregated across contexts and countries, and thus across all ICF programmes that seek directly to increase community/household resilience.

Alternatively, the figures reported may be the proportion of people/households sampled experiencing an increase in resilience.

Reported data may be further refined by reporting the number or proportion of the sample or target population experiencing an increase in resilience of represented by different increases in score, where the score is based on how many categories they move up in the indicator (out of 5).

4. Next steps and key issues

The indicators presented here should be viewed as draft indicators that require further refinement and piloting. The development and piloting of the TAMD framework, and pending Country Strategic Programme Reviews (SPRs), provide a number of opportunities for the piloting and further development of these indicators.

The following next steps are proposed:

1. Further review of the indicators and methodological notes by DFID staff in Palace Street, Abercrombie House, and in selected Country Offices (mid-2012).
2. Identification of KPIs from the set of indicators presented in this report (mid-late 2012).
3. Possible further refinement of the indicators as part of the TAMD development phase in mid-late 2012, subject to approval from DFID and the TAMD team.
4. Possible piloting in-country of some or all indicators during the TAMD pilot phase from late 2012 to late 2014, subject to the needs and approval of TAMD country teams and partners.

Key issues that remain to be addressed are:

i. Whether outcome indicators applied to systems targeted by ICF programmes can be applied practically in ICF programme contexts
ii. Whether further development of numeric output indicators is required for those planning indicators that are currently "outcome-only" (see Annex 2)
iii. Which indicators should be selected as KPIs
iv. Whether the outcome-only indicators developed here (if approved) may be used as KPIs (related to points ii and iii above)
v. Identification of precisely how indicators will be aggregated
vi. The practicality of the resilience indicators, and how these will be assessed in practice (e.g. by programme staff, or will these require the engagement of external specialists on a programme-by-programme basis).

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5. Trans-boundary Water Management in SADC - Supporting RSAP-3
6. Nepal Climate change support programme: adaptation and climate resilient development initiatives for the most vulnerable
7. Climate Change Programme 2009/13 – Support Bangladesh to achieve MDGs

Annex 2. Indicator long-lists

At the beginning of the assignment, DFID provided the consultants with a "long-list" of adaptation indicators, organised in three sets. One of these sets was derived from the TAMD framework (Brooks et al., 2011), and the other two sets consisted of possible indicators suggested by DFID. One of the latter sets (Set 3) was associated with methodological notes. These indicator sets are described in Table A1, with indicators organised into clusters or "domains".

Table A2 lists the indicators encountered in the wider review of the literature and other results frameworks. Where an indicators is present in one or more of the sets in Table A1, the set number (1, 2 or 3) is listed in the second column.

Table A1. Indicators in the TAMD and other sets in the original long-list provided by DFID.

SET 1 (TAMD)	SET 2	SET 3 Indicator	SET 3 Methodology
Institutional indicator domains (with specific indicators to be identified) intended to represent the extent to which climate risk management (CRM) is integrated into development-related decision-making at the institutional level (e.g. government departments, policies, agencies, etc).			
Use of climate & M&E information in policy and programme design	Sources of quality information on the effects of CC are used	The use of climate information (and outputs from M&E systems) in policy and programme design	Baselines will be required according to the specific type(s) of information in question, and the different type(s) of use to which it might be put. Collection of available information can serve as a proxy to assess the professional capacity of key implementing agents/agencies (mostly the focus will be on key national and sub-regional counterpart agencies). Where an intervention is not already directly addressing climate institutional capacity, internal surveys or institutional stocktakes of use may be necessary.
Efficacy of CRM functions in national systems			
Proportion of development initiatives "climate-proofed"		Proportion of development initiatives that are climate-proofed (ie. explicitly addressing climate risks)	A review of secondary data should identify the baselines in (terms of original design) and the relevant changes which have been made. Internal surveys or institutional stocktakes of actual progress may also be necessary
Mechanisms for targeting the climate-vulnerable poor		Mechanisms for targeting the climate vulnerable	An assessment will be made of nationally-owned mechanisms for screening risk and targeting resources at the vulnerable. Internal surveys are likely to be the most effective way of assessing mechanisms.
Institutional frameworks providing regulatory & legislative support for adaptation			
Effectiveness of macroeconomic management for climate resilience			
		How well the national adaptation functions of the World Resources Institute framework performed	http://pdf.wri.org/working_papers/NAC_framework_2009-12.pdf. Collection of data using the framework will be a proxy 'snapshot' of how far particular countries have to go in order to build their institutional capacity. A partnership approach will work best, and more work is needed on making the framework comparable across countries.
	Effective organisational structures around adaptation issues		
	Resources and capabilities within institutions working on adaptation issues		

	Relevant experience and skill-sets of target groups and individuals		
	Other resources that may support action that leads to effective adaptation		
Indicator domains representing the impacts of development/adaptation interventions "on the ground", and on the vulnerability of exposed populations and systems			
Numbers of beneficiaries of CCAA interventions		Numbers of beneficiaries of CCAA interventions	Numbers will be assessed during each DFID programme review to provide detailed calculations. Collection methodologies should allow data to be disaggregated by gender, and by 'direct' and 'indirect' beneficiairies (ie. those who receive inputs as distinct from others who benefit generally from improvements delivered by an intervention – see also next indicator, below).
Coverage of climate change adaptation interventions		Coverage of climate change adaptation interventions (including vulnerable geographic areas, vulnerable social groups within countries or regions, other vulnerability hotspots)	Some form of GIS mapping exercise is likely to be most effective, building on FEWSNET approaches or VAM assessments. Health monitoring is undertaken by NGOs, and WHO and available to draw on. Further work will be required on urban vulnerability which is known to be a gap in terms of coverage.
Numbers of people experiencing reductions in vulnerability		Numbers of men & women less vulnerable to climate change	RCT-type (randomised control trial) evaluations will collect detailed data. Baselines will be established from existing livelihoods data, service delivery outreach data, and humanitarian data. Secondary data exists in most cases, but project officers may need to commission collection of supplementary livelihoods data. Outstanding issues include: (a) distinguishing degrees of change/reduced vulnerability generated by the intervention specifically, (b) defining realistic timelines against which improvements can be benchmarked, (c) defining the climate scenario as a risk (d) ensuring sufficiently similar issues can be compared across different interventions.
Values of assets and economic activities protected or made less vulnerable to climate change as a result of adaptation interventions		Value of assets protected/ losses avoided	Methodologies will assess the effectiveness of adaptation investments in protecting public assets (insured and uninsured); uninsured private assets; impact on income flows from major disasters. Values canbe estimated from available data sources. DFID office or implementing partner may also choose to undertake periodic studies of value and loss in selected programme locations. Methodologies are likely to require effective working relations with the insurance industry as probably the main source of data, or IFIs. The nature of the relationship and the work required to develop it will vary in different contexts.
Benefit/cost ratios of		Benefit/cost ratio of interventions	Project documents will provide unit cost data, and predict quantifiable

adaptation options identified/implemented (or monetary cost per outcome delivered)			benefits. Annual stocktakes can harvest data from annual reviews/PCRs/operational research by DFID staff. This approach can be used to asses the VFM of different interventions in different contexts to inform ongoing decisions.
Number of interventions that use private sector delivery mechanisms			
	Food and water supply secure in times of crisis		
	Livelihood diversification at household and community levels (on-and-off-farm, reduced #'s engaged in hazard-vulnerable activities)		
	Adoption of hazard-resistant agricultural practices and sustainable environmental management (soil and water conservation, forest management, flexible cropping, hazard-tolerant crops)		
	Existence of and access to community savings and credit schemes, or microinsurance Structural mitigation measures in place (water-harvesting, flood diversion channels…) Houses, workplaces and public facilities located in safe areas or hazard-resistant construction methods in use		
	Measures in place to protect key assets (eg livestock) and items of domestic property) Human development efforts remain on-track in face of hazards (schooling days lost, disruption to water and sanitary services, child health service continuity)		
	Number of communities/ households seeing transformational change in their livelihood base over a 10-year period in response to climate variability.		

Table A2. Most commonly encountered indicators in wider review

INDICATORS GROUPED BY DOMAIN	NOTES; IN SETS 1,2,3?
Knowledge	
[all levels] have awareness of CC	
Have access to information	
Can describe trends (that might affect them)	
Show learning from experience (=knowledge generation)	
Show learning from elsewhere (≈ knowledge assimilation)	
Good M&E	

= knowledge dissemination
     All learning/info is publically available,
     Transparency	

Do they (local level) monitor weather/climate?	
Threat and hazard information generated disseminated	
Budget for information gathering Good analyses of information Updating definitions	

Information reaches people who need it
     (say they have the info they need)
     Information used in decision-making	

Planning	
[all levels] Have plans	
Have strategies	
Have capacity/ competencies	
Have capacity to integrate Climate resilience	
Show increased capacity	
Capacity to manage climate finance	
(trainings delivered, numbers trained)	
Have resources to address CC issues	
Do planning docs incorporate CC issues? Assessment of climate risks to priorities in national plan documents.	
Do planning docs show changes relating to CC awareness Ministries update/revise strategies	
Do [all levels] have flexibility to act	
Correct agency has the mandate/ the power to act	
Agency has the necessary budget to act	
Effectiveness of macroeconomic management for climate resilience	1
Effective organisational structures around adaptation issues	3

Incorporation of CC priorities enforced
       Regulations to include
       Institutional frameworks provide regulatory and legislative support for adaptation
	1

Quality of participatory processes Local input into assessments of vulnerability and impacts	
Systems exist to update planning docs and assessments	
Number of ministries mainstreaming adaptation in annual planning.	
M&E framework Baselines developed Counterfactual developed based on Business As Usual scenario	(also in Knowledge but needs to be in Planning)
Decisions based on evidence Policies informed by evidence informed by vulnerability assessments	
Efficacy of CRM functions in national systems	
Proportion of initiatives that are "climate proofed".	
Mechanisms for targeting the climate-vulnerable poor	= risk assessments in

	Assets
Assets/vulnerability	
Number of beneficiaries	
Number with reduced vulnerability (climate vulnerability)	
Number (or proportion) with climate-resilient livelihoods	
Number of poor/vulnerable implementing initiatives	
Comprehensive risk analysis and vulnerability assessments Correctly disaggregated for sector, area, gender, population group, location)	(could be in Planning)
Conduct and update risk assessments	
Natural resources assets maintained/ improved to withstand CC Increased resilience in economic, social and ecosystems	
Modified behaviour Risk reduction actions at local level	
Conduct and update risk assessments	
Range of options studied (infrastructure, ecology, social protection …) Cost analyses done Short- and long- term assessments	

Technical details
        (number of plant species)
        Food and water supply secure
        SWC, forest management, cropping patterns, hazard-tolerant crops,
Structural mitigation measures (flood diversion, ..
Buildings in safe areas or hazard proof construction methods,
Measures to protect key assets (livestock, domestic property
	
	2
	2
	2

Value of assets protected (made less vulnerable) or losses avoided, Cost Benefit analyses of options (VFM assessments)	1,3
Numbers of interventions Proportion of coverage (% of area?) Proportion of initiatives that are "climate proofed". Coverage of CCA interventions including areas, social groups, …	 1, 3
Livelihoods more secure – assessments of different capitals that make up livelihood.	
Livelihood diversification at household and community levels (on- and off-farm, reduced numbers in hazard-vulnerable activities) Adoption of hazard-resistant agricultural practices and sustainable environmental management	2
Access to credit and savings and microinsurance	2
Human development efforts remain on track in face of hazards (school days lost, disruption to water & sanitation services, child health service,)	
Number of communities/households seeing transformational change in their livelihood base over a 10-year period in response to climate variability	2. hard to use but interesting commitment to longer term assessment.
Miscellaneous	
Increased investments New funding Changes in budget allocations	
No and quality of policies	
Coordination (concerns all departments) Authoritative body charged to coordinate Coordination mechanisms are functioning	Could be in planning

ANNEX 3. Possible quantitative output indicators

The scorecard indicators proposed in the main text of this report are based on assessments of the systems targeted by ICF programmes. These assessments are intended to be carried out at regular intervals and, for the evaluation of individual programmes, at the beginning, during, and at the end of the programme being evaluated. Programme performance is then indicated by changes in indicator scores, which should increase, indicating improvements in capacity and knowledge, the domains to which the scorecard indicators apply. To ensure that such improvements can be attributed to the programme interventions, indicators should be complemented by qualitative supporting evidence.

The above approach seeks to evaluate the extent to which programme outputs are translated into desirable outcomes in the systems targeted by ICF programmes, through assessment of conditions in the target system. Nonetheless, it is recognised that there is also an appetite for simple, numeric output indicators that can be applied to either the target system or to the programme itself. The majority of logrames examined as part of this scoping study rely on such numeric indicators.

Table A3 suggests some possible numeric indicators that may either complement or replace three of the scorecard indicators in the planning domain. These are intended to be illustrative in nature, and to provide a starting point for further discussion. If the numeric indicator approach is taken up, comparable numeric indicators may be developed to complement the remaining planning and knowledge scorecard indicators.

These indicators could be applied directly to a programme, for example by asking how many initiatives have been screened as part of the programme activities, or how many staff the programme has trained. Alternatively, they could be applied to the target system, asking how many initiatives developed within the system (e.g. Ministry of Planning) have been screened, or how many Ministry staff have received training, over a period during which one or more programmes have been operational. In the latter case, further supporting evidence would be required to attribute improvements over time to the programmes.

There are some obvious problems with the numeric indicator approach that the scorecard approach avoids or at least mitigates. Firstly, outputs do not automatically translate into desirable outcomes. For example, a programme may result in initiatives being screened and some of these being subject to a climate risk assessment, but this does not necessarily indicate that a robust and sustainable climate safeguards system is in place (whereas the scorecard indicator asks whether such a system is in place and assesses its maturity). Similarly, funding directed at system development or the piloting of measures to address climate change does not necessarily mean that systems *are* developed successfully, or that measures are successfully piloted.

Secondly, numeric indicators can result in perverse incentives. Indicators based on numbers of risks or measures identified might result in a disproportionate focus on identifying and addressing new risks that might be relatively minor, rather than a focus on addressing major known risks.

While numeric indicators might have a role to play, and while they might be more attractive that somewhat more labour intensive scorecard indicators, they should be

treated with considerable caution, particularly when other types of indicator are available.

Table A3. Possible numeric indicators that might complement or replace three of the scorecard planning indicators.

PLANNING INDICATORS	Quantitative output indicators (where applicable)
Integration	
1. Existence of CC plan	No. of CC risks/issues identified in planning docs.
2. Coordination of CC actions	No. of coordination initiatives/links between institutions
3. Identification of measures	No. of adaptation or LCD measures identified
4. Routine screening	No. (or proportion) of initiatives screened
5. Climate safeguards system	Proportion of high-risk initiatives subject to CRA
Finance/budgeting	
1. Funding for piloting	No. of pilot adaptation/LCD measures funded
2. Funding for mainstreaming	% of budget allocated to climate change
3. Costing mechanisms	No. of pilot adaptation/LCD measures costed
4. Adequate funding: measures	Proportion of costed necessary measures funded
5. Support from (e.g.) MoF	Funding for CC actions from (e.g.) MoF
Knowledge (institutional)	
1. Awareness	No. of staff provided with some training/sensitisation
2. Formal training in CC	No. of staff supported to receive formal training
3. Accredited courses	No. of staff attending accredited courses
4. Integration oversight	No. of staff managing integration given relevant training
5. Sufficient numbers trained	% of staff involved in CC-relevant planning trained