

## An operational framework for Tracking Adaptation and Measuring Development (TAMD)

Nick Brooks, Simon Anderson, Ian Burton,  
Susannah Fisher, Neha Rai and Ian Tellam

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Nick Brooks, Simon Anderson, Ian Burton,  
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The Tracking Adaptation and Measuring Development (TAMD) framework offers a 'twin track' framework for use in many contexts and at many scales to assess and compare the effectiveness of interventions that directly or indirectly help populations adapt to climate change. TAMD differs from other assessment frameworks by emphasising the need to assess development interventions in the light of changing climate risks. This is to avoid missing effective interventions whose outcomes are obscured by increasing risks and vulnerability.

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## Abbreviations

AF	Adaptation Fund
CRM	Climate Risk Management
DFID	Department for International Development
GCF	Green Climate Fund
ICF	International Climate Fund
IEG	Independent Evaluation Group
MDA	Ministries, Departments and Agencies
MDB	Multilateral Development Bank
NAP	National Adaptation Plan
PPCR	Pilot Programme on Climate Resilience
PRSP	Poverty Reduction Strategy Paper
PWR	Participatory Well-being Ranking
TAMD	Tracking Adaptation and Measuring Development
ToC	Theory of Change

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## Executive summary

This paper outlines the steps needed to apply the Tracking Adaptation and Measuring Development (TAMD) framework, providing practical guidance on how to put the concepts outlined in IIED Climate Change Working Paper no. 1 (Brooks *et al.*, 2011) into operation.

In its simplest form, the TAMD framework assesses how climate risk management interventions (in Track 1) influence development and adaptation outcomes (in Track 2) through various processes described for each intervention in a theory of change. However, this simple 'risk management assists adaptation' relationship is just one among many that can be assessed. TAMD can evaluate an intervention's outputs, its short term outcomes and its longer term impacts within and across the two tracks, and at scales ranging from multiple countries to individual villages. Thus it can explore how adaptation and or adaptation-relevant interventions contribute to better climate risk management on the one hand, and help keep development outcomes on course in the face of climate change on the other.

The paper discusses the need for baseline data (and how such data might be collected), suggests indicators that can be used to measure adaptation outcomes (and how these might be tailored to different contexts) and outlines how outcomes and longer-term 'impacts' can be robustly attributed to interventions by developing theories of change and collecting causal narratives.

# 1. Introduction

Developing country governments, their ministries, departments and agencies (MDAs), international institutions, donor governments, Multilateral Development Banks (MDBs) and other development agencies and institutions are increasingly focusing their attention on climate change adaptation. With this comes a growing need for results frameworks that enable these stakeholders to assess the success of adaptation interventions. Such frameworks have emerged in the context of major climate funds such as the Adaptation Fund (AF) and the Pilot Programme on Climate Resilience (PPCR), and will be generated for the Green Climate Fund (GCF).

Results frameworks most often aim to assess the efficiency of adaptation funding and interventions, measured as ratios of outputs (goods and services delivered - benefits) to inputs (the intervention - costs). However, this approach tends to neglect the wider – and ultimately more important – issue of effectiveness, or how well adaptation interventions and investments perform in delivering their stated objectives (i.e. with respect to intended outcomes and impacts). A recent report by the Independent Evaluation Group of the World Bank (IEG, 2013) stated that “Current results frameworks on resilience are not outcome-oriented and risk emphasising spending over results.” Furthermore, the report highlights several shortcomings associated with approaches based on measuring adaptation spending, including the difficulty of identifying precisely what proportion of an investment is ‘adaptation-related’, the likely omission of investment that delivers indirect adaptation benefits, and the unsuitability of this approach for indicating cost-effectiveness.

This paper addresses the need for evaluative frameworks that assess the relative (or comparative) effectiveness of interventions that directly and/or indirectly address adaptation to climate change. Building on previous work, it further develops an evaluative framework, known as Tracking Adaptation and Measuring Development (TAMD). The framework is already being tested as a way to develop evaluation mechanisms and processes

for national level climate adaptation in five countries, in partnership with government agencies and research organisations, and with support from the UK’s Department for International Development (DFID).<sup>1</sup>

This technical paper builds on an earlier conceptual paper published by IIED (Brooks *et al.*, 2011) that gives a high level overview of TAMD, and discusses some of the issues and challenges in evaluating adaptation success. Since that publication, we have further developed draft adaptation indicators for evaluating the UK’s International Climate Fund (ICF) activities (Brooks and Rowley, 2012).<sup>2</sup> We now show how TAMD can be made operational by applying versions of these draft ICF indicators, and we suggest how they might be modified and augmented for a variety of contexts (e.g. at different scales).

This paper provides practical guidance for those wanting to use TAMD in development and adaptation contexts. While TAMD has been developed in the context of the ICF, the intention is to deliver a framework that is sufficiently practical, flexible and transparent to be applied in, or modified for, a wide variety of contexts and over a range of different scales, from the national (and supranational) to the local. For example, TAMD can be used as a starting point or template for developing national adaptation evaluation frameworks tailored for different country contexts.

This paper opens with a summary of TAMD, followed by a discussion of how the outputs, outcomes (immediate changes) and impacts (longer term changes) of development and adaptation interventions map onto the TAMD framework. The paper identifies specific indicators that may be used with TAMD (these are detailed in Annex 1) and addresses a number of challenges in evaluating adaptation, including the need to establish baselines, how data can be collected, and how theories of change and empirical evidence can together help attribute outcomes to adaptation interventions. Finally, a checklist for applying TAMD is presented.

<sup>1</sup> The five countries are Nepal, Pakistan, Kenya, Mozambique and Ghana.

<sup>2</sup> Ten indicators were developed for application in ICF contexts, and each of these is described in the methodological notes. See [www.iied.org/tracking-adaptation-measuring-development](http://www.iied.org/tracking-adaptation-measuring-development)

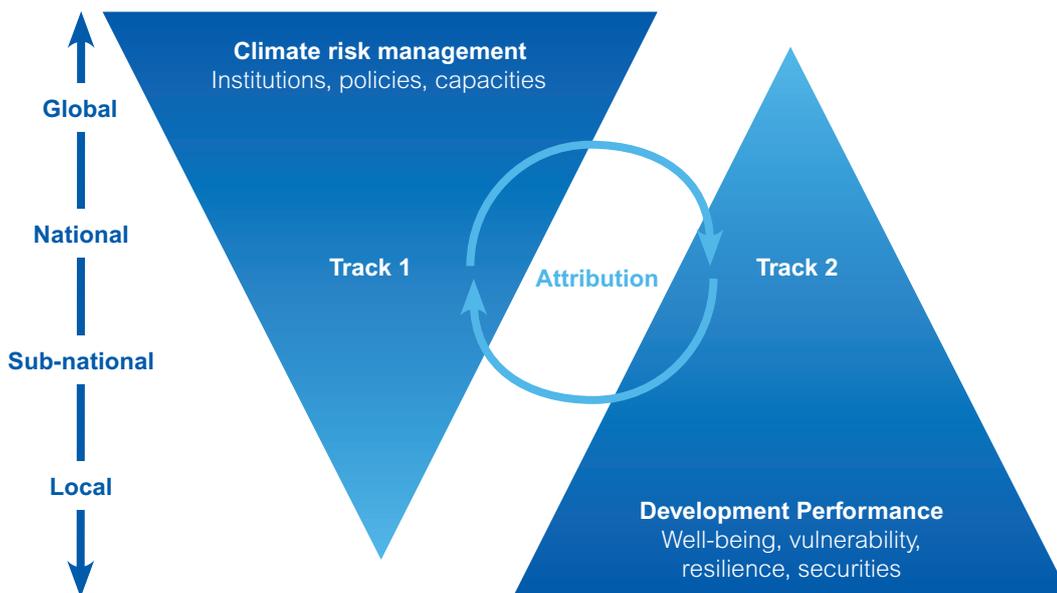
## 2. Summary of the TAMD framework

TAMD is intended to be a flexible framework for evaluating adaptation and adaptation-relevant development interventions in diverse situations. It can be modified for different contexts and types of adaptation. TAMD is a ‘twin-track’ framework that evaluates the extent and quality of climate risk management (CRM) processes and actions on the one hand (Track 1), and the associated development and adaptation outcomes (and their longer term impacts) ‘on the ground’ on the other (Track 2). The two tracks are illustrated graphically in Figure 1.

These two tracks represent the domains within which outputs, outcomes and impacts are evaluated. Causal relationships between them can be viewed as movement up and down the tracks. The shapes of the triangles

indicate the dominant directions of this movement. For example, Track 1 envisages that national CRM interventions will result in better CRM at regional and local levels. In Track 2, multiple interventions to improve local development outcomes will lead to a collective impact on regional and national development and adaptation. This does not rule out the possibility of movement in the opposite directions; for example national climate policies may be informed by local experience with CRM. So the shapes of the triangles illustrate key processes (particularly related to developing and improving national systems, policies and priorities), rather than being proscriptive. Causal relationships will also exist across the tracks, for example where better CRM results in reduced vulnerability and improved development outcomes.

**Figure 1.** Basic representation of the TAMD framework, illustrating the climate risk management track (1), the development performance track (2), and the links between them (attribution). Climate risk management (CRM) extends across all scales, and does not occur just at the global or national level. Development performance similarly spans all scales.



TAMD assumes that effective CRM (Track 1) will, by definition, contribute to adaptation by people, groups, enterprises and economies; and will help secure development outcomes in the face of (increasing) climate risks (Track 2). By evaluating the outputs, outcomes and impacts of adaptation and adaptation-relevant development interventions within and across the two tracks, and by considering how outputs are linked to outcomes and impacts, TAMD seeks to assess the adaptation process at scales from global (e.g. for initiatives across several countries) to local.

One of the challenges in evaluating adaptation interventions is attributing observed (and intended) development and adaptation outcomes to specific CRM interventions. TAMD can address this using a quasi-experimental approach: by estimating Track 2 indicators for populations before, during and after interventions, and/or with and without interventions. Using indicators that represent vulnerability and capacity to adapt to particular climate risks, in addition to more usual development indicators, is an important part of the evaluation process, and is vital for attributing outcomes (and impacts) to specific interventions.

The indicators described above will be complemented by other approaches to the attribution issue, including using (and testing) theories of change, and developing, comparing and testing causal narratives during the evaluation process. These multiple approaches should make attribution more robust, although significant complexities and challenges will remain. These issues are discussed in more detail below.

In summary, TAMD envisages evaluating adaptation through:

- using indicators of the extent and quality of CRM;
- assessing how, and how well, CRM benefits climate-vulnerable people;
- using standard development indicators that reveal whether development is 'on track';
- and employing indicators that reveal whether populations and the systems on which they depend are experiencing reductions in vulnerability / increases in resilience, and enhanced 'adaptive capacity'.<sup>3</sup>

<sup>3</sup> People's vulnerability to short-lived, sudden-onset climate hazards or stresses will depend on conditions at the time the hazard occurs. Their vulnerability to climate stresses sustained over short periods (weeks to months) will depend on their ability to deploy temporary coping strategies. Where climate stresses are sustained for longer periods, and perhaps indefinitely, people's vulnerability will depend on their ability to adapt. Indicators of adaptive capacity therefore become more important when evaluating vulnerability to longer term changes in climate (Brooks, 2003).

### 3. Outputs, outcomes and impacts in the TAMD framework

In this paper we define outputs, outcomes and impacts as follows:

**Outputs:** goods or services delivered by an intervention (project or programme) and used by others.

**Outcomes:** short term changes in the population or system targeted by the intervention that result from delivering or using outputs.

**Impacts:** longer term changes that result from outputs and outcomes, either within or outside the population or system the intervention targets (e.g. the intervention may produce or influence wider societal changes).

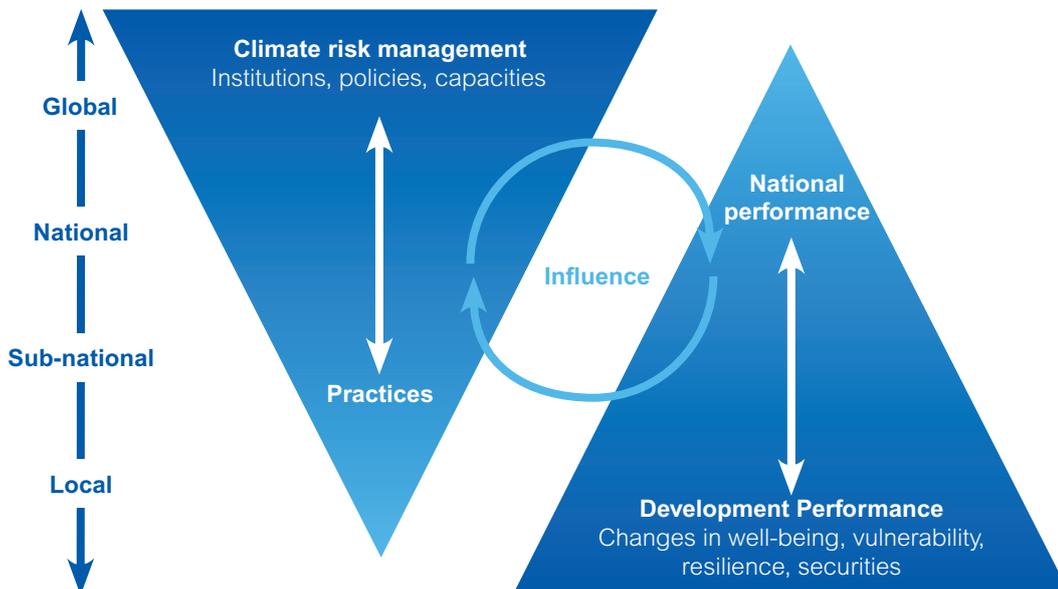
Tracks 1 and 2 of the TAMD framework encompass a wide variety of interventions, processes, outputs, outcomes and impacts. Links between outputs, outcomes

and impacts may exist within and between the tracks (Figure 2). For example, an evaluation might examine how outputs from national CRM interventions (upper part of Track 1) influence either local vulnerability outcomes and impacts (lower part of Track 2), or regional or local CRM practices (middle and lower parts of Track 1).

Evaluation might assess interventions aimed at introducing national CRM processes. In such a case, an outcome might be a national climate safeguards system, and an impact might be routine integration of climate change considerations into national planning. In this case, outputs, outcomes and impacts would all be located in the upper part of Track 1.

Interventions at the local level might also influence regional and national level CRM processes, for example by generating information and insights that inform

**Figure 2.** Elements of CRM and development performance, with the former influencing the latter, and CRM at the global and national scales influencing CRM at regional and local scales and (to a lesser extent) vice versa.



national adaptation and development policies. Local level interventions, even if not directly related to CRM, might nevertheless reduce vulnerability, for example by reducing poverty, improving education, enhancing mobility and access to markets, increasing livelihood diversity, and so on. Interventions with such 'serendipitous' or indirect adaptation benefits might be associated with outputs, outcomes and impacts all located in the lower part of Track 2.

Explicit adaptation interventions and wider development interventions can both reduce vulnerability to climate change and enhance peoples' capacity to adapt to it. Examples of such interventions include initiatives to reduce energy poverty in off-grid areas, soil and water conservation measures, agricultural diversification through agro-forestry and/or crop introductions, and expanded access to financial services such as credit and insurance. Track 2 of TAMD can assess these interventions for vulnerability and adaptive capacity. However, they may also have a positive effect on CRM, for example diversification and insurance uptake may spread the risks associated with climate extremes. These interventions might therefore also be evaluated under Track 1, in the context of improved local CRM.

Better local development and adaptation outcomes should contribute to better national development performance, for example by reducing food insecurity, enhancing incomes, and reducing the need for central spending on managing climate-related disasters and crises. Therefore, there are also influences across scales within Track 2.

Assessing development and adaptation outcomes and impacts located in Track 2 will inform CRM processes in Track 1. The findings might relate to the impacts of CRM or other policies and practices on vulnerability and adaptive capacity. This is another example of influence being not just from Track 1 to Track 2, but in both directions.

While the model in which CRM processes in Track 1 influence development and adaptation outcomes and impacts in Track 2 is a valid one, it represents just one type of relationship between interventions/outputs and outcomes/impacts, and just one application of TAMD. TAMD is flexible enough to be applied in a range of adaptation and development contexts. Interventions, outputs, outcomes and impacts can, in principle, be located anywhere on the TAMD framework, in either Track, as represented by Figures 1 and 2.

Table 1 provides some examples of how Tracks 1 and 2 of TAMD can assess the effectiveness of different adaptation and adaptation-related interventions.

### 3.1. An example of applying TAMD: national level Climate Risk Management

The first step in applying TAMD will be to locate on the framework the interventions, outputs, outcomes and impacts to be evaluated. This is done by considering at what scales the interventions are intended to operate. How well the interventions incorporate and/ or improve CRM is then assessed. These interventions may include activities directed specifically at delivering adaptation or improving CRM, as well as 'regular' development activities that do not directly address climate risks but nonetheless may have positive effects on resilience/vulnerability and adaptive capacity. The outputs, outcomes and impacts are then identified and located within one or both tracks of TAMD (Figure 2).

Figure 3 shows an example intervention: support for developing or improving a national CRM system. This might involve a combination of training for key personnel in national level institutions (e.g. MDAs), developing screening and risk assessment processes to identify national policies and development initiatives that are climate sensitive, and identification of appropriate adaptation strategies, and other related activities.<sup>4</sup>

The outputs from such support would be located in the upper part of Track 1, at the scale of the intervention (i.e. national scale). These outputs would be associated with outcomes and impacts at the same level in Track 1 (e.g. establishment of a climate safeguards system at national level, and routine integration of climate change considerations into national level planning).

**Table 1:** Intervention types and related changes in TAMD Tracks

Intervention types	Examples	Changes in Track 1	Changes in Track 2
Improvements in CRM at national level	<ul style="list-style-type: none"> <li>Climate proofing of transport infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Use of climate projections to judge severity of climate impacts and level of protection measures</li> </ul>	<ul style="list-style-type: none"> <li>Lower incidence of climate-related disruption of transport services</li> <li>Reduced loss of access to trading routes due climate effects</li> </ul>
Improvements in CRM at sub-national level	<ul style="list-style-type: none"> <li>Extreme weather event preparedness of district authorities</li> </ul>	<ul style="list-style-type: none"> <li>Increased effectiveness of early warning systems</li> </ul>	<ul style="list-style-type: none"> <li>Reduced losses of household assets</li> </ul>
Improvements in CRM at local level	<ul style="list-style-type: none"> <li>Local adaptation plans of action – livelihoods oriented</li> </ul>	<ul style="list-style-type: none"> <li>Location specific measures to protect natural resources</li> <li>Fewer incidences of reduced food, water, energy, or human security</li> </ul>	<ul style="list-style-type: none"> <li>Fewer incidences of reduced food, water, energy, or human security</li> </ul>
Adaptation-related development	<ul style="list-style-type: none"> <li>Micro-hydro energy generation for off-grid communities</li> <li>Local seed systems to diversify cropping systems</li> <li>Social safety net provision</li> </ul>	<ul style="list-style-type: none"> <li>Energy generation infrastructure located away from flooding</li> <li>Drought tolerant landraces included in seed system</li> <li>Climate vulnerable targeted</li> </ul>	<ul style="list-style-type: none"> <li>Energy access improves range of adaptation options</li> <li>Local food insecurity due to drought is reduced</li> <li>Climate vulnerable people use safety net provision to recover from climate-related events</li> </ul>

<sup>4</sup> A number of organisations have developed climate risk screening tools and guidance, including the African Development Bank (in the form of its Climate Safeguards System and Adaptation Review and Evaluation Procedures), and the European Commission (as an Annex in its Guidelines on the Integration of Environment and Climate Change in Development Cooperation).

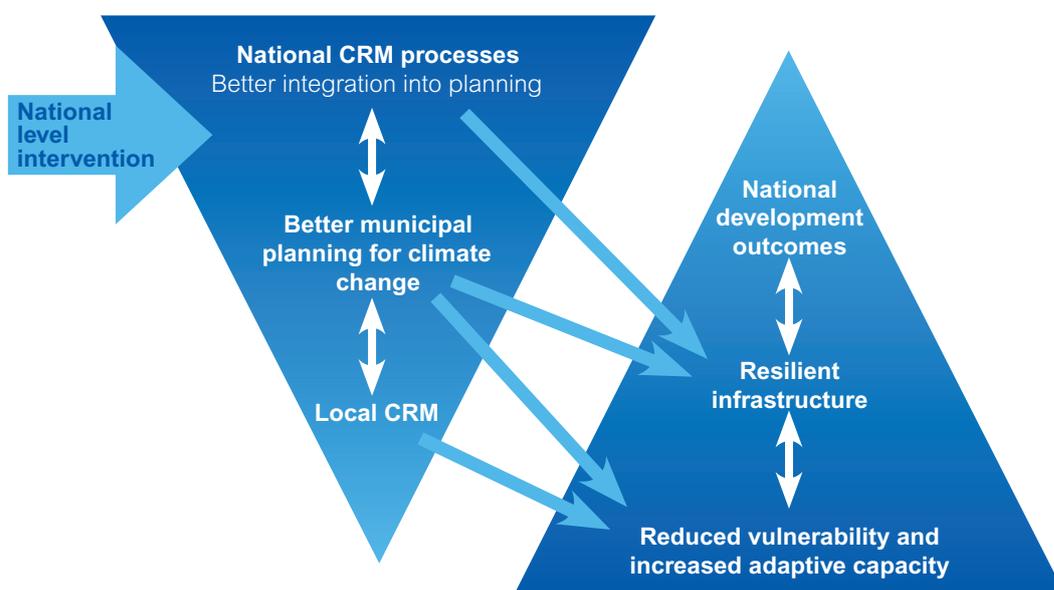
The national level outcomes and impacts should in turn influence how CRM is carried out at the regional/municipal and local levels, in the middle and lower parts of Track 1. In other words, the primary outcomes and impacts at the national level will generate a series of secondary outcomes and impacts at the regional level, and these in turn will generate further outcomes and impacts at the local level (illustrated in Figure 3). Changes in CRM practices at these multiple scales in Track 1 will also influence adaptation and development outcomes in Track 2, generating further sets of outcomes and impacts within Track 2 (thick arrows in Figure 3).

A full evaluation of how a country manages climate change risks might seek to assess outcomes and impacts at all levels across both tracks. Alternatively, an evaluation of national level support for CRM might be much more limited, and seek only to assess the outcomes and impacts resulting from that support (restricting the assessment to the upper

part of Track 1). Of course, TAMD does not apply only to donor investments/interventions, but can also evaluate interventions based on domestically sourced investment.

The example in Figure 3 also emphasises the importance of defining the scope of an evaluation, and being clear whether that evaluation is assessing the intervention's success (e.g. support from a donor/partner), or the effectiveness of a system that the intervention targets (e.g. a national CRM system).

**Figure 3.** An example showing how TAMD can assess an intervention designed to improve national CRM processes. Evaluation might only cover the intervention's outcomes and impacts on national CRM, located in the upper part of Track 1 (left triangle). A more comprehensive evaluation of the national CRM system itself might assess outcomes and impacts across both tracks, at multiple levels. This example is discussed further in the text.



## 4. Identifying indicators for use with TAMD

Tracks 1 and 2 of the TAMD framework provide a number of entry points for identifying indicators of successful adaptation, and adaptation-relevant, development interventions. In principle, we can define indicators at four levels for each track – global, national, regional/municipal and local. Track 1 is associated with indicators that show the extent and efficacy of CRM systems, mechanisms and practices. Track 2 indicators relate to development and adaptation outcomes at different levels (Figure 4).

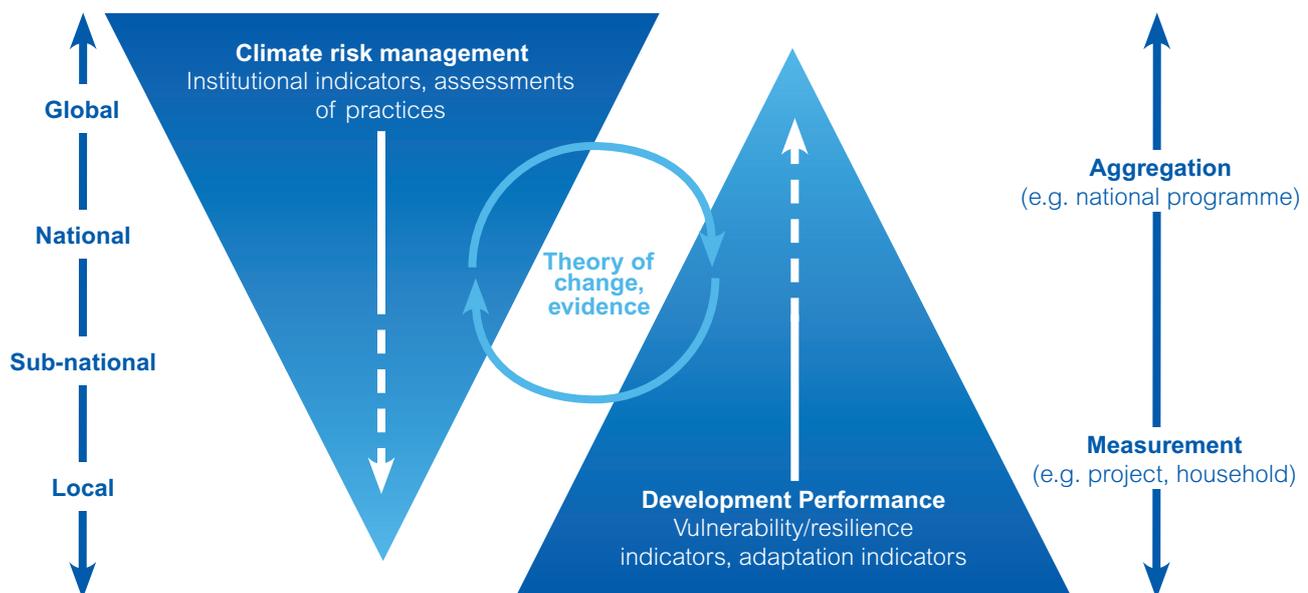
Table 2 identifies a number of indicators that might be used at different levels, for each of the two tracks.<sup>5</sup> These are a combination of quantitative/numeric and qualitative/ categorical indicators, with categorical

indicators emphasised for Track 1, and numeric indicators emphasised for Track 2.

Annex 1 provides summary descriptions of the key (numbered) CRM indicators listed in Table 2. More detailed descriptions and guidance on using the indicators is provided in a series of methodological notes.<sup>6</sup>

The indicators presented in Table 2 and Annex 1 are not intended to be prescriptive, and should be treated as suggestions that need to be tailored to actual circumstances.

**Figure 4.** Assessing development and adaptation using the TAMD framework, through indicators that capture the extent and quality of CRM (Track 1), and reductions in vulnerability and improvement in development outcomes in the face of increasing climate risks (Track 2). Links between CRM and development and adaptation outcomes are identified and verified through theories of change supported by empirical evidence.



<sup>5</sup> Based on indicators developed for DFID in mid-2012.

<sup>6</sup> See methodological notes: [www.iied.org/tracking-adaptation-measuring-development](http://www.iied.org/tracking-adaptation-measuring-development)

**Table 2:** Indicator categories for application at different levels/scales across the TAMD tracks.

Level	Track 1: climate risk management (CRM)	Track 2: development and adaptation outcomes
Global	<ul style="list-style-type: none"> <li>• Aggregation of national-level performance indicators across countries</li> </ul>	<ul style="list-style-type: none"> <li>• Aggregation of national-level performance indicators across countries</li> </ul>
National	<ul style="list-style-type: none"> <li>• Integration (of CC into planning) – Indicator 1</li> <li>• Institutional coordination — Indicator 2</li> <li>• Budgeting and finance (for integration and adaptation) – Indicator 3</li> <li>• Institutional knowledge (of CC, adaptation and integration) – Indicator 4)</li> <li>• Use of climate information (to inform planning) – Indicator 5</li> <li>• Planning under uncertainty (using appropriate information and methodologies) – Indicator 6</li> <li>• Participation (of relevant stakeholders in national planning processes) – Indicator 7</li> <li>• Awareness among stakeholders (of climate change, risks and responses) – Indicator 8</li> </ul>	<ul style="list-style-type: none"> <li>• Aggregation of local/regional data on numbers experiencing changes in vulnerability and development status</li> <li>• Changes in climate-related economic losses and other impacts (e.g. people affected by climate-related disasters) at national level, in conjunction with data on evolving climate hazards (exposure)</li> </ul>
Sub-national	<ul style="list-style-type: none"> <li>• As for national level, adapted for regional contexts</li> </ul>	<ul style="list-style-type: none"> <li>• Aggregation of local data on numbers experiencing changes in vulnerability and development status</li> <li>• Changes in climate-related losses and other impacts at regional/municipal level, in conjunction with data on evolving climate hazards (exposure)</li> </ul>
Local	<ul style="list-style-type: none"> <li>• As for national level, adapted to contexts relevant to key local (formal) institutions, if relevant</li> <li>• Uptake of CRM measures such as risk spreading mechanisms (financial, livelihood, social) – Indicator 9)</li> <li>• Awareness (of climate risks, trends, prospects, response options) – modified version of Indicator 8)</li> <li>• Climate information (availability, access, use of) – modified version of Indicator 5)</li> </ul>	<ul style="list-style-type: none"> <li>• Numbers of people becoming more or less vulnerable, as measured by a variety of context-specific vulnerability indicators</li> <li>• Changes in poverty and other standard development indicators, complemented by or 'normalised' with respect to changes in climate hazards (exposure)</li> </ul>

#### 4.1 CRM indicators (Track 1)

A number of categorical CRM indicators are proposed under Track 1 (Table 2 and Annex 1). These include 8 national level indicators relating to: integration/mainstreaming, coordination, budgeting, knowledge, use of climate information, planning under uncertainty, participation and awareness among stakeholders. These indicators share a number of similarities with the indicators proposed under the PPCR results framework, as illustrated in Table 3.

The TAMD Track 1 indicators can be adapted for the regional and local levels where appropriate, as discussed in more detail below. One additional indicator, relating to uptake of CRM measures, is proposed for use at the local level (Table 2 and Annex 1).

Each CRM indicator involves a scorecard containing five questions to which the answer is yes, partially, or no, and scored 0, 1 or 2 respectively. The answers to these questions can be aggregated to yield an overall score out of 10 for each indicator, so that changes in the extent and quality of CRM over the various dimensions the indicators represent can be tracked over time. The nature of these indicators means changes in CRM performance can be tracked over relatively short timescales (e.g. annually). Detailed guidance on answering the questions used in each indicator (i.e. selecting yes, partially or no) is provided in the methodological notes that accompany the indicators.

##### 4.1.1 Modifying national level indicators for use at the regional level

Regional CRM will reflect national CRM, and it is proposed that the national level CRM indicators listed above and in Table 2 and Annex 1 are adapted as required. This adaptation for regional use, or indeed for use within any institutional context, is likely to be minimal, as the questions used to construct the indicators are generally applicable to any institution. The questions most likely to require modification are those relating or alluding to legislation, and these might be modified to

cover institutional requirements and practices. If required, questions about authoritative coordination bodies and financial entities may be adapted so that they refer to key parts of an institution or key aspects of management systems within a sector.

##### 4.1.2 Flexibility and modifying national level indicators for use at the local level

How far national level indicators need to be modified for use at the local level will depend on the nature of the evaluation being carried out. For example, evaluating adaptation in a local institutional context might employ modified versions of all the national level indicators. As at the regional level, the degree of modification required might be minimal if the indicators are applied to formal institutions operating at the local level.

In contrast, where evaluation targets CRM as practiced by individuals and households, the set of required indicators is likely to be quite different. Of the national level CRM indicators, the most relevant are likely to be those relating to awareness and use of climate information, and not all of the questions associated with these indicators will be applicable. The questions that are likely to be most useful are the ones that address awareness of (evolving) climate risks and available response options, access to relevant climate information (e.g. seasonal forecasts and information on trends and potential near-future risks), and people's ability to interpret and use this information.

Other indicators that are not applicable in their entirety to the individual/household contexts might nonetheless include one or more questions that can be modified for these contexts. For example, questions from the budgeting indicator might be modified to address the affordability of adaptation measures. Questions from the 'planning under uncertainty' indicator might be modified to address whether guidance on planning for climate risks is available to householders. Questions from the participation indicator might be modified to address the extent to which households are included in any on-going initiatives to build resilience.

**Table 3:** Comparisons between proposed TAMD indicators (described in Annex 1) and indicators identified in the PPCR Results Framework. Some of the PPCR indicators share similarities with more than one TAMD indicator, so are listed more than once in the right hand column.

TAMD Indicator	PPCR Counterpart(s)
<b>Track 1, National Level</b>	
1. Climate change integration (mainstreaming) into planning	<ul style="list-style-type: none"> <li>• A2.1 (core). Degree of integration of climate change in national planning, including sector planning – e.g. national communications to UNFCCC, national strategies, PRSPs [Poverty Reduction Strategy Papers], core sector strategies, annual development plans and budgets, and NAPs [National Adaptation Plans]</li> <li>• B2 (core). Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience [emphasis on coordination]</li> </ul>
2. Institutional coordination for integration	<ul style="list-style-type: none"> <li>• B2 (core). Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience [emphasis on coordination]</li> </ul>
3. Budgeting and finance	<ul style="list-style-type: none"> <li>• A2.2 (optional). Changes in budget allocations at national and possibly subnational level of government to take into account effects of CV [climate variability] and CC [climate change]</li> <li>• B5 (core). Quality of and extent to which climate responsive instruments/ investment models are developed and tested</li> <li>• B4 (optional). Leverage of PPCR funding against public and private investments in climate sensitive sectors</li> </ul>
4. Institutional knowledge/capacity	<ul style="list-style-type: none"> <li>• B2 (core). Evidence of strengthened government capacity and coordination mechanisms to mainstream climate resilience [emphasis on capacity]</li> </ul>
5. Use of climate information	<ul style="list-style-type: none"> <li>• B3 (optional). Evidence showing that climate information products/ services are used in decision making in climate sensitive sectors</li> </ul>
6. Planning under uncertainty (using appropriate information and methodologies)	<ul style="list-style-type: none"> <li>• B2 (core). Evidence of strengthened government capacity and coordination mechanism to mainstream climate resilience [emphasis on capacity]</li> </ul>
7. Participation (of relevant stakeholders in national planning processes)	
8. Awareness among stakeholders	
<b>Track 1, Regional Level</b>	
Adapted versions of national level indicators as appropriate	
<b>Track 1, Local Level</b>	
9. Extent and quality of CRM measures such as risk spreading mechanisms (financial, livelihood, social)	<ul style="list-style-type: none"> <li>• B1 (core). Extent to which vulnerable households, communities, businesses and public sector services use improved PPCR supported tools, instruments, strategies, activities to respond to climate variability and climate change</li> </ul>
Adapted versions of national level indicators as appropriate.	<ul style="list-style-type: none"> <li>• B1 (core). Extent to which vulnerable households, communities, businesses and public sector services use improved PPCR supported tools, instruments, strategies, activities to respond to CV and CC</li> </ul>
<b>Track 2, Local Level</b>	
10. Number of households with reduced vulnerability / increased resilience	<ul style="list-style-type: none"> <li>• A1.3 (core). Numbers of people supported by the PPCR to cope with effects of climate change</li> <li>• A1.1 (optional). Change in percentage of households (in areas at risk) whose livelihoods have improved (acquisition of productive assets, food security during sensitive periods of the year)</li> </ul>
11. Context-specific indicators capturing certain aspects of vulnerability/resilience that will depend on nature of interventions	<ul style="list-style-type: none"> <li>• A1.4 (optional). Percentage of people with year round access to reliable water supply (domestic, agricultural, industrial)</li> </ul>
12. Opportunistic indicators that might be used where similar climate hazards occur before and during/ after intervention, allowing losses/ damages to be compared and changes in vulnerability inferred	<ul style="list-style-type: none"> <li>• A1.2 (optional). Change in damage/losses (\$) from extreme climate events in areas at risks that are the geographical focus of PPCR intervention</li> </ul>
<b>Track 2, Local Level</b>	
Aggregated versions of indicators 10-11	

Where a subset of questions from one or more CRM indicator is relevant in a local context, these questions might be used as a basis for the construction of new indicators tailored to the context in question. These new indicators might combine modified questions from more than one of the national level CRM indicators, and/or include other, novel questions as appropriate. It is important that evaluators feel free to tailor indicators to evaluation contexts, by leaving out, modifying or adding to the indicators presented here. The indicators described above and detailed in Table 2 and Annex 1 represent an illustrative template for evaluation, not one that should be followed rigidly.

#### 4.1.3 Supporting indicators using narratives

The question-based score card indicators described above will need to be supported by descriptive narratives explaining how institutional CRM has been strengthened. These narratives should describe the processes and causal mechanisms linking the outputs of an intervention to the outcomes and impacts that have been observed. They should be based on dialogue with stakeholders involved in and affected by the interventions. Different stakeholders may provide different narratives, and these may be compared with each other and with the narratives that describe causal mechanisms and pathways in relevant theories of change.

Dialogue with stakeholders should seek to develop narratives around the questions that make up the indicators used in the evaluation. For example, one of the questions under the integration indicator asks whether climate-relevant initiatives are routinely screened for climate risks. A descriptive narrative supporting this question would detail when and why the screening process was introduced, the nature of the screening process, how it is used (e.g. which initiatives are screened), and what effects screening has had on planning since it was introduced. This would help evaluators to understand the links between outputs

that involve establishing climate screening mechanisms, outcomes that involve routine screening of development initiatives/investments, and impacts that increase climate resilience of infrastructure and other systems.

## 4.2 Adaptation, vulnerability and development outcomes (Track 2)

The ultimate goals of adaptation and CRM are to reduce people's vulnerability to climate-related risks (i.e. enhance their resilience) and to secure development outcomes (at a range of scales) in the face of climate change that might otherwise undermine development progress. Comprehensive evaluation of adaptation and CRM therefore requires evaluation of changes in vulnerability and development status on the ground, and this is what evaluation under Track 2 seeks to achieve.

### 4.2.1 Standard development indicators and the confounding effects of climate change

Standard indicators of development outcomes represent one way of evaluating whether development is 'on track' (i.e. whether development objectives are being reached), and have a role to play in evaluation using TAMD. However, if these indicators reveal that development is not on track, the question remains as to whether development interventions are failing (and so are discredited and should be abandoned) or whether their benefits are being partially (or wholly) offset by confounding factors — such as climate change. Where this is the case, development outcomes might in fact become much worse if such interventions cease.

Use of standard development indicators must therefore be complemented by considering how exposure to climate stresses or hazards might be changing, and whether changes in this exposure have played a role in poorer-than-expected development performance.<sup>7</sup> In principle, this might be achieved by deriving empirical relationships

<sup>7</sup> Here a climate hazard is defined as a physical manifestation of climate change or variability that has the potential to affect human populations and the systems on which they depend.

between climate parameters (e.g. temperature, rainfall, extremes, etc.) and key development variables (e.g. household incomes, food insecurity, etc.) for specific contexts, and comparing expected with observed data. Data for development indicators could then be adjusted or normalised to take account of climate change trends. However, this is likely to be highly resource intensive and may be unrealistic because of limited historical data with which to establish statistical relationships between climate variables and development outcomes.

A more practical approach might involve a qualitative analysis, through questions such as (i) has poorer development performance coincided with climate extremes or climate-related disasters/crises, and (ii) is there convincing documentary evidence of causal links between poor development outcomes and climate stresses?

Of course, climate change is not the only potential confounding factor that might undermine or offset development performance, and economic and other shocks might have similar impacts. To complicate matters further, different confounding factors will interact with, and may amplify, each other. For example, climate-related shortfalls in local food production may cause food insecurity because households produce less food for their own consumption, and also because they have less produce to sell and earn income (making them less able to afford food). Even if local food prices remain constant, a fall in income from cash crops will reduce households' purchasing power. In reality, local shortfalls in production will tend to increase food prices. This situation might be exacerbated further by increases in global commodity prices (due to climate change or increased global demand) that further increase the price of imported foodstuffs.

#### 4.2.2 Vulnerability indicators

A population's risk of having its development hindered by climate change is a function of its exposure to climate change-related hazards or stresses on the one hand, and its underlying vulnerability or sensitivity to these hazards on the other (Brooks, 2003; Kolmannskog, 2009; IPCC, 2011).<sup>8</sup> Climate change will result in changes in exposure, as climate hazards such as droughts and other climatic extremes change in frequency and severity, and new (e.g. longer-term) hazards emerge. As discussed above, development outcome data must be interpreted in the light of these changing hazards, which may make it harder to achieve desired development goals. It may be possible in principle to 'normalise' or 'correct' development outcome data to account for changes in exposure to climate hazards, but this is likely to be difficult in practice.

One way around the need to 'normalise' development outcome data to account for changing exposure is to measure changes in vulnerability rather than - or more likely as well as - changes in development status. Where interventions are meant to increase people's capacity to anticipate, cope with, resist, recover from or adapt to evolving climate hazards, vulnerability indicators can be used to assess whether this has been achieved. Where exposure increases because of intensifying hazards, people may need to improve these capacities just to maintain current levels of development. Vulnerability (and related adaptive capacity) indicators can be used to evaluate whether efforts to improve these capacities have been successful where standard development outcome data may show little or no improvement.

TAMD (Brooks *et al.*, 2011) proposes assessing the results of adaptation and adaptation-relevant development interventions through household surveys that record 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 development and climate risk

<sup>8</sup> Here we view vulnerability as resulting from the internal characteristics and situation of the system, population, or other elements that are exposed to the physical hazards associated with climate change and variability. These characteristics and situation affect the ability of the system, population or element to anticipate, cope with, resist, recover from and adapt to the evolving climate hazards. It is the interaction of exposure and vulnerability that determines risk and results in adverse development outcomes.

contexts, and might include quantities such as household size or income, diversity of income sources, distance to nearest market, geographical location, etc. Returning to the example in which increases in food prices amplify food insecurity associated with climate-related declines in subsistence yields, one indicator of vulnerability could be the proportion of household income spent on food (related to affordability).

Once a set of vulnerability indicators 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 proportion of household income spent on food is selected, households whose spend is in the top fifth of the range will be assigned a score of 5 (most vulnerable). Those in the bottom fifth will be assigned a score of 1 (least vulnerable), and so on.<sup>9</sup> Sampling will be carried out before, during and at the end of a programme/intervention, in order to assess how many households have experienced changes in score indicating reduced vulnerability.

This approach produces a figure for 'number of households with reduced vulnerability (or increased resilience/capacity) in one or more indicator'. 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). If desirable, the degree of improvement can be assessed based on the frequency of households reducing their vulnerability by 1, 2, 3, or 4 points.

The 'number of households with reduced vulnerability' can be aggregated across contexts, and across countries, as can data on the degree of improvement.

The household survey approach described above is potentially very time and resource intensive. An alternative, less resource and time intensive way of assessing vulnerability is participatory well-being ranking (PWR).

In PWR, community groups are asked to assess the proportions of the community that fall into different categories of 'well-being' (e.g. Hargreaves *et al.*, 2007). These categories can be defined to encompass vulnerability, letting the approach yield information on numbers of people experiencing changes in vulnerability over time, in a similar way to the individual household survey.

#### 4.2.3 Comparing TAMD and PPCR quantitative indicators

An indicator based on numbers of people experiencing reductions in vulnerability (as the result of an intervention) is in line with commonly used indicators that measure the number of people supported by or benefiting from an intervention, or experiencing improved livelihood or other (e.g. health, food security, etc.) outcomes. The PPCR results framework has two such indicators (Table 3). TAMD proposes an indicator that measures an intervention's success in terms of reduced vulnerability/increased resilience, rather than just the numbers of people receiving support. In this respect the TAMD vulnerability/resilience indicator is closer to PPCR indicator A1.1 than A1.3 (Table 3). PPCR indicator A1.3 does not necessarily yield any information about how well this support achieved the intended results, and may be described as an output indicator. Indicator A1.1 measures changes in people's situations, but focuses on general livelihood status rather than any 'climate-specific' aspect of vulnerability. TAMD proposes climate specificity based on the arguments outlined in section 4.2.1 above, namely that improvements in livelihoods and other aspects of development status need to take account of changing climate risk baselines if they are to tell us anything about adaptation.

In some contexts it might be appropriate to use more straightforward numeric indicators of vulnerability. For example, PPCR indicator A1.4 measures the percentage of people with year round access to reliable water supply (domestic, agricultural, industrial). This numeric indicator

<sup>9</sup> Evaluators may prefer to talk about 'resilience' or 'capacity' rather than 'vulnerability', which can be seen as portraying an overly negative view of a situation, household or community. In this case, an alternative scoring system might be used in which a score of 5 indicates most resilient/highest capacity, and 1 least resilient/lowest capacity. Rather than looking for a reduction in vulnerability of 1 or more points, evaluators would then be looking for an increase in resilience/capacity.

will be relevant where climate variability or change affects access to clean water. When deciding whether to use numeric indicators it is worth remembering Füssel's (2010) cautionary statement that, "All quantitative vulnerability concepts need to specify the vulnerable system, the hazards it is exposed to, the attributes at risk from this exposure, and the time period considered." In other words, the concept of vulnerability is only meaningful when we specify who is vulnerable, what hazard(s) they are vulnerable to, what the consequences are of the interaction of hazard and vulnerability (i.e. what adverse outcomes are we concerned with), and the timescales we are interested in. Vulnerability indicators need to be designed with this in mind.

The PPCR results framework also includes an indicator related to damages/losses from extreme climate events (Indicator A1.2). To be useful, such an indicator will need to be normalised to account for changes and variations in the frequency and severity of extremes, particularly where these extremes are becoming more or less prevalent, and where the extremes in question are infrequent. This is a significant challenge, and TAMD advocates using measures of damages/losses only where such normalisation can be achieved, for example by comparing damages/losses associated with climate extremes of a similar nature and magnitude that occur before and during/after an adaptation or development intervention. The use of such an approach may have to be opportunistic, when circumstances permit, and indicators relating to losses/damages might need to be supplementary to a set of core vulnerability indicators based on the methodology outlined above (Brooks *et al.*, 2011).

## 5. Baselines, monitoring and sampling

Tracking adaptation and development trends requires good baseline data—something that is often missing from evaluations of development outcomes. Even if there are baseline data for ‘standard’ development indicators, baselines for vulnerability and adaptive capacity are even less readily available.

Where using numeric indicators for development, vulnerability and adaptive capacity, it may be necessary to build a data gathering component into the initial phase of an intervention. While this may have significant resource implications, it might be the only way of tracking results with any confidence. Household surveys or participatory well-being rankings might be gathered from a representative sample of the population(s) targeted by an intervention. In some cases, such data might be gathered by linking with research organisations or local authorities. Where interventions are linked with wider development support (e.g. general or sector budget support), some of this support might be focused on improving national statistical systems to incorporate data relating to vulnerability and adaptive capacity. However such data are gathered, they should be gathered at regular intervals in order to track outcomes and impacts.

The issue of baseline data is less problematic for categorical indicators, which will be based largely on expert judgment informed by detailed guidance on how to assign scores. It should be relatively straightforward to carry out assessments based on categorical indicators at regular intervals, using the initial assessment as the baseline.

## 6. Attribution using theories of change

Wherever outputs, outcomes and impacts are located on the TAMD framework, attributing outcomes to outputs, and impacts to outcomes, is crucial in order to demonstrate whether or not adaptation and development interventions have achieved the intended results.

Theories of change (ToC) are playing an increasingly important role in programming and evaluating adaptation and development interventions. Put simply, a ToC is a “description of a sequence of events that is expected to lead to a particular desired outcome” (Davies, 2012), and is both “a process and a product” (Vogel, 2012, p.4). This description can be used to map the sequence of a development intervention from inputs to outcomes, while examining assumptions about how these changes might happen, and encouraging reflection and dialogue among and between stakeholders (Vogel, 2012). By making explicit the assumptions about links between inputs, outputs, outcomes and impacts, ToC can help to identify indicators that can be used to “build a credible case that there is a relationship between changes that have taken place and the activities that the programme undertook” (Vogel, 2012).

For example, ToC are emerging that link development and adaptation activities, and their associated outputs, to a better integration of climate change considerations into development planning and investment. This in turn is linked to reduced vulnerability, enhanced resilience and greater adaptive capacity in poor populations.<sup>10</sup>

ToC are useful at the design stage of an intervention, as they allow it to be built around a sequence of linked, logical steps. They also aid evaluation by making explicit the assumptions and proposed causal processes and mechanisms that lead from inputs to outcomes (and ultimately to impacts). This allows evaluators to develop indicators and to record stakeholder narratives that can reveal whether the processes and mechanisms identified in the ToC are evident in reality. If they are, they suggest that the intervention design and the ToC

on which it is based are sound, and that there is a good chance that observed outcomes are the results of the interventions inputs and outputs. If the processes identified in the ToC are not evident in reality, this suggests that the ToC and/or the intervention design are flawed, and that observed positive outcomes may be the results of other processes. These other processes may or may not be associated with the intervention.

Narratives are key elements of ToC, and help both to make explicit, and to test, assumptions about how an intervention delivers the desired results, or why it does not (Vogel, 2012).

At the programming stage, ToC will involve ‘predictive’ narratives developed by those designing and implementing an intervention. These should be based on a sound understanding of the context(s) in which the intervention will be implemented, and on empirical evidence as far as is possible. This evidence will help those responsible for the intervention understand the causal processes and mechanisms that will be targeted by the intervention’s inputs and outputs. For example, an empirically-grounded understanding of the way in which climate shocks affect food security will enable an intervention to target specific areas of vulnerability (e.g. lack of access to financial services such as insurance, low diversity of products or income streams, lack of access to institutional support, etc.). Empirical evidence may take the form of previous surveys or studies by government, NGOs, academic or other bodies, or of studies commissioned by those funding, designing or implementing the intervention to gather contextual and baseline data. Dialogue with stakeholders will be crucial to identify drivers of vulnerability and related needs.

At the evaluation stage, narratives will be recorded based on the observations and experiences of those targeted for assistance by the intervention. These stakeholder-driven narratives can be compared with the ‘predictive’ narratives in the ToC used at the programming stage. Where observational (evaluation) narratives do not agree with predictive (programming)

<sup>10</sup> This example is a very much simplified description of the DFID Theory of Change for Adaptation.

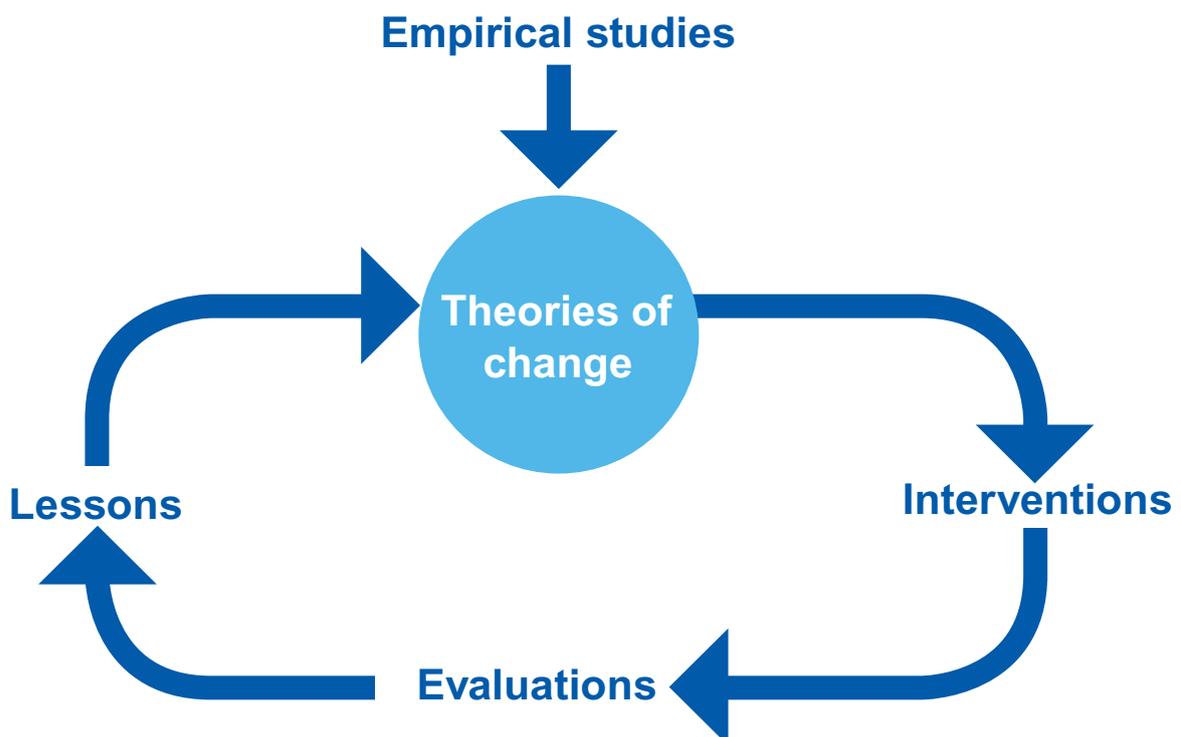
narratives, evaluation can reveal ways to improve the ToC, or may suggest a new model linking outputs, outcomes and interventions.

Within any given intervention, it is important to acknowledge that there may not be a single, 'universal' narrative that applies to all stakeholders. Different stakeholders might experience different outcomes, and the intervention may 'work' for some stakeholders but not others. A number of different causal mechanisms linking outputs, outcomes and impacts may operate simultaneously, with different stakeholders experiencing different 'causal pathways'. Both design and evaluation therefore may need to accommodate multiple narratives.

Attribution using ToC has three key components (see Figure 5):

- Evidence from empirical studies, e.g. of vulnerability, adaptation, development impacts and pathways. These may be academic studies or studies by governments, NGOs or other entities. These studies might already have been carried out, or they might be commissioned as part of a campaign to gather baseline information or to establish indicators.
- Theories of change that are informed by this empirical evidence (and which should also have informed the design of interventions).
- The evaluation process itself (e.g. within TAMD), which tests the ToC's robustness and generates lessons to improve it. Evaluation will use indicators as described above, but it should also gather qualitative narrative information to establish the nature of the links between outputs, outcomes and impacts (see Box 1).

**Figure 5.** The role of theories of change in attributing outcomes and impacts to specific adaptation and adaptation-relevant interventions.



**Box 1. Establishing links between outputs, outcomes and impacts**

Theories of change (ToC) enable programme developers and evaluators to make explicit the assumptions about the sequence of events expected to lead from inputs through outputs to outcomes, and ultimately to impacts. Where the desired outcomes and impacts are observed, evaluation will need to establish whether or not these can be attributed to the intervention in question (i.e. to project/programme inputs and outputs). This can be done by taking the following steps:

1. Identify the proposed causal mechanisms in the ToC.
2. Identify other possible causal mechanisms that could explain the observed outcomes.
3. Identify specific changes that demonstrate a particular causal mechanism is operating, and indicators that could capture this operation.
4. Gather and interpret indicator data to determine which explanations the quantitative evidence supports (i.e. which causal mechanisms).
5. Develop qualitative narratives associated with the causal mechanisms identified in (2) and (3).
6. Elicit explanatory narratives from stakeholders and compare these with the narratives in (5) to see which explanations/mechanisms stakeholders' experiences support.
7. Use the results of steps 4 and 5 to evaluate the likelihood that observed, desired outcomes can be attributed to the intervention – does the evidence indicate that
  - a. the outcome(s) can be attributed mostly or wholly to the intervention?
  - b. the intervention contributed to the outcome(s) but was one of a number of factors?
  - c. the intervention may or may not have contributed to the outcome(s), (ie the evidence is inadequate or equivocal?)
  - d. the intervention is unlikely to have contributed significantly to the outcome(s)?
8. Assign a level of confidence (e.g. beyond reasonable doubt, high, medium or low) to the result.

## 7. Applying TAMD in quasi-experimental mode

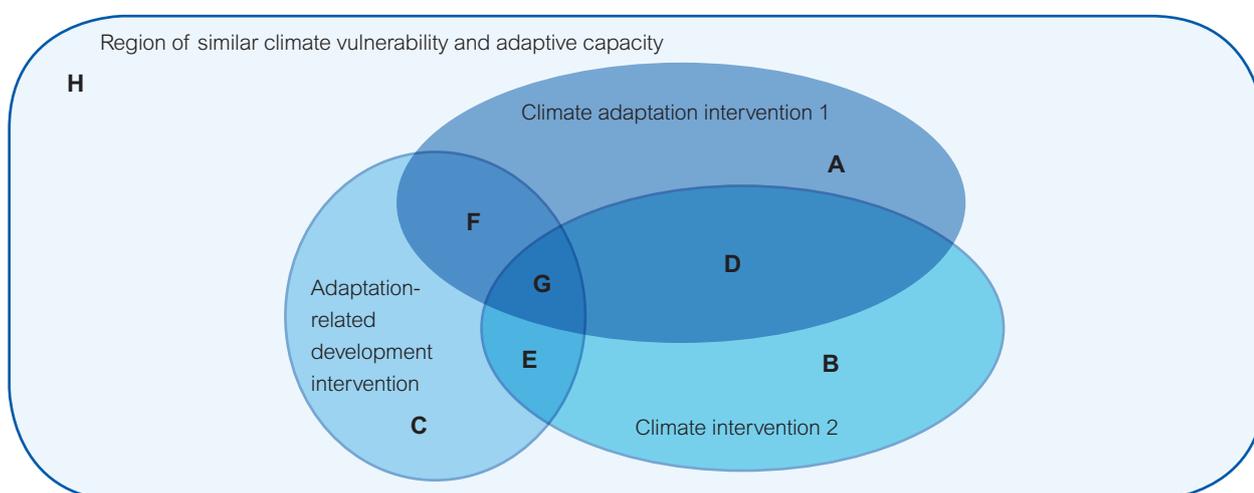
Where populations are known to have the same climate vulnerability characteristics and a similar range of adaptive capacity both within and outside the adaptation area (or the area for an adaptation-related development intervention), comparing them can help assess the interventions in quasi-experimental ways. Track 2 indicators can be generated for both populations. By comparing these over time, the intervention's effects can be assessed. This is equivalent to 'with and without treatment effects' in experimental methods.

This way of applying TAMD can be extended to scenarios

where more than one intervention is carried out in the same region. Figure 6 below shows three interventions across a region where climate vulnerability and adaptive capacity are sufficiently similar to allow comparisons across populations.

Table 4 below shows how sampling from the different areas represented in Figure 6 can compare both interventions and combinations of interventions. It is important to note that using this quasi-experimental approach depends upon being able to estimate indicator levels for similar populations in all of the areas denoted.

**Figure 6.** Hypothetical scenario whereby effects of different interventions can be compared



**Table 4:** Comparisons of interventions under the scenario shown in Figure 6

Areas of Figure 6	Comparison allowed
A vs H	effect of adaptation intervention 1
B vs H	effect of adaptation intervention 2
C vs H	effect of adaptation-related development intervention
D vs H	effect of adaptation interventions 1 and 2 combined
E vs H	effect of adaptation intervention 2 and adaptation-related development intervention combined
F vs H	effect of adaptation intervention 1 and adaptation-related development intervention combined
G vs H	effect of adaptation interventions 1 and 2 plus adaptation-related development intervention combined

## 8. A checklist for applying TAMD

In order to evaluate an intervention, set of interventions or set of processes with TAMD, the following steps are needed.

### 1. Define the evaluation context and purpose.

- Is the purpose to evaluate the success of a particular intervention or set of interventions, or to evaluate the efficacy of a system or set of processes (e.g. a national CRM system)?

### 2. Establish a theory of change (ToC) (or use the ToC employed when programming the intervention).

- Identify the relevant outputs, outcomes and impacts to be evaluated
- Identify assumptions about how activities undertaken during an intervention will lead to the desired outcomes (i.e. causal mechanisms)
- Identify or develop narratives about how causal mechanisms work

### 3. Identify the relevant scales (global, national, regional, local).

- At what scale does the intervention operate, and at what scale(s) are the outputs, outcomes and impacts to be evaluated?
- Will results at one scale need to be aggregated at a larger scale?

### 4. Locate outputs, outcomes and impacts on the TAMD framework.

- On which track(s) are the outputs, outcomes and impacts located?
- Where on the track(s) are the outputs, outcomes and impacts located (i.e. which scales)?

### 5. Identify the type of indicators are required.

- Which indicators are most appropriate given the location(s) of the outputs, outcomes and impacts on the TAMD framework?
- What mix of numeric and categorical indicators is required?
- For numeric indicators, will these measure vulnerability/ adaptive capacity/resilience or 'standard' development outcomes, or a combination of both?
- Do the indicators address the causal mechanisms leading from outputs to outcomes as proposed in the ToC?

### 6. Define the indicators.

- For categorical indicators, can the 'off-the-shelf' indicators in Annex 1 be used, or do these need to be adapted, augmented, or substituted with other indicators?

- For numeric development outcome indicators, which indicators are most relevant?

- For numeric vulnerability indicators, how can the most important (in the context in question) drivers of vulnerability, determinants of adaptive capacity, or elements of resilience be captured through existing indicators or new indicators?

- Where new indicators are proposed, how feasible will it be to construct these?

### 7. Gather data.

- Establish baseline data.
- Ensure that data are gathered at regular intervals.
- Ensure that data relating to intervention results are complemented by data on climate trends and the incidence of climate extremes and disasters, so that results can be interpreted in a climate risk context. This is especially important for data based on standard development indicators.
- Collect/generate stakeholder narratives about how changes/ outcomes came about.

### 8. Analyse indicators and data at different levels of Tracks 1 and 2.

- Measure changes in indicators by comparing baseline levels with estimates at subsequent time periods (before, during and after).
- Measure differences in indicators across comparable cases (with and without interventions).
- Examine how well the measured indicator levels fit with the theory of change established at beginning of evaluation.

### 9. Address attribution.

- Evaluate attribution based on indicators designed to capture causal mechanisms
- Test narratives from the ToC, comparing expected causal mechanisms with stakeholder generated narratives describing observed changes.
- Identify how far outcomes may be attributed to an intervention, and assign a level of confidence to this attribution.
- See Box 1 for further details.

### 10. Make sure to disseminate lessons from the monitoring and evaluation of results, so that interventions can be modified where necessary, and future interventions can be informed by these lessons.

## 9. Conclusions

TAMD aims to deliver a framework (or multiple frameworks) that can be used in a wide variety of contexts and over a range of different scales to assess the effectiveness of adaptation interventions and compare different interventions and approaches. This paper has outlined the steps needed to apply TAMD and operationalise the concepts outlined in Climate Change Working Paper no. 1 (Brooks *et al.*, 2011).

Using the twin tracks of climate risk management and adaptation and development outcomes, TAMD seeks to assess adaptation processes at multiple scales and through an evaluation of outputs, outcomes and impacts within and across the two tracks. This is to explore how adaptation or adaptation-relevant interventions contribute to better climate risk management and to help keep development outcomes on track in the context of increasing climate risks.

The conceptual framework of TAMD can be applied in different ways. In its simplest form it implies that CRM processes in Track 1 influence development and adaptation outcomes in Track 2 through various processes. However, this reflects just one type of relationship between the tracks and one application of TAMD. TAMD can be applied to a variety of interventions at different scales, and these can be situated at different points in the conceptual framework.

Suggestions for indicators have been outlined in this paper but these are partly illustrative; they may need to be adjusted to tailor them to different contexts in which TAMD could be applied. The question of attribution within the framework and constructing and using baselines across interventions are explored in this paper and are also areas for further development. Testing the TAMD framework in different contexts will help address these areas and will develop an evidence base through applying the framework in a variety of contexts.

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## Annex 1 Scorecards for Track 1 categorical indicators

This annex presents scorecards for the TAMD climate risk management (CRM) categorical indicators on Track 1, described in the main text (Table 3). Each indicator is scored by answering 'no', 'partial' or 'yes' to 5 questions that represent key climate risk management criteria.

The scorecards have been designed to be as clear and straightforward as possible, while remaining sufficiently general to suit diverse contexts. Nonetheless (and in large part because of their applicability to a range of contexts) some guidance is appropriate on how to answer the criteria questions, and this is provided in a methodological note for each indicator.<sup>1</sup>

### National level

<b>Indicator 1. Climate change integration into planning</b> Representation of strategies that address climate change in relevant planning documents & processes	<b>No</b>	<b>Partial</b>	<b>Yes</b>
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. Is there a formal (e.g. legal) requirement for climate change (adaptation/mitigation) to be integrated or mainstreamed into development planning (cf requirement for EIA for certain activities/projects)?			
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?			
<b>Score</b> (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

<sup>1</sup> See: [www.iied.org/tracking-adaptation-measuring-development](http://www.iied.org/tracking-adaptation-measuring-development)

<b>Indicator 2. Institutional coordination for integration</b> Extent and quality of coordination of climate risk management across relevant institutions	No	Partial	Yes
1. Has an authoritative body been tasked with coordinating climate change planning and actions?			
2. Does the coordinating body have high convening authority/hierarchical importance across other cross sectoral departments or ministries?			
3. Has a dedicated institutional mechanism been defined for coordination and implementation across sectors?			
4. Is there dedicated funding or certainty of long term funding for sustaining this institutional coordination mechanism?			
5. Is there regular contact between the coordinating body and relevant ministries and agencies (e.g. in key climate-sensitive sectors)?			
<b>Score</b> (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

<b>Indicator 3. Budgeting and finance</b> Financial support for climate change mainstreaming & initiatives – funding available for local initiatives, locally-owned/driven	No	Partial	Yes
1. Is funding available to pilot measures that 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)?			
<b>Score</b> (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

<b>Indicator 4. Institutional knowledge/capacity</b> Level of knowledge and training of key personnel in climate change issues and mainstreaming processes	<b>No</b>	<b>Partial</b>	<b>Yes</b>
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 enough people with the required training involved in planning processes?			
<b>Score</b> (No. of “YES” answers x 2, plus no. of “PARTIAL” answers x 1)			

<b>Indicator 5. Use of climate information</b> Extent to which climate information is (i) used to inform responses to climate change and (ii) generated, at all levels of society	<b>No</b>	<b>Partial</b>	<b>Yes</b>
1. Does planning take account of observational data relating to climate trends and variability?			
2. Does planning take account of climate projections - is climate information (forecasts, projections, information on responses) readily accessible via information sharing platforms or networks (e.g. for screening)?			
3. Is there sufficient access to climate information generated by foreign and international organisations (e.g. IPCC, research bodies, academic institutions)?			
4. Is the use of scientific information from external sources complemented by the use of domestically generated information including local/traditional/ indigenous knowledge?			
5. Does the capacity to interpret and use climate information (e.g. in scenario planning, risk frameworks, vulnerability assessments) exist?			
<b>Score</b> (No. of “YES” answers x 2, plus no. of “PARTIAL” answers x 1)			

<b>Indicator 6. Planning under uncertainty</b> Institutional capacity for decision-making under climatic uncertainty	No	Partial	Yes
1. Does planning (and wider climate change dialogue) incorporate 'envelopes of uncertainty', defined as 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?			
<b>Score</b> (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

<b>Indicator 7. Participation</b> Quality of stakeholder engagement in decision-making to address climate change	No	Partial	Yes
1. Are all relevant levels of governance (national, provincial/district, local/ community) (required to be) represented in planning process?			
2. Are those who might be adversely affected by climate change initiatives represented in planning/decision-making?			
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)?			
<b>Score</b> (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

<b>Indicator 8. Awareness among stakeholders</b> Level of awareness of climate change issues, risks and responses	<b>No</b>	<b>Partial</b>	<b>Yes</b>
1. Are stakeholders aware of climate change and its potential implications (e.g. for their sector, for society at large)?			
2. Are stakeholders aware of potential, available, or on-going climate change response options?			
3. Does relevant information reach key stakeholders (e.g.) in climate-sensitive sectors?			
4. Do institutional mandates raise awareness of and disseminate information about climate change (risks, impacts, responses, etc)?			
5. Is adequate funding available for awareness raising among relevant stakeholders and public at large?			
<b>Score</b> (No. of "YES" answers x 2, plus no. of "PARTIAL" answers x 1)			

### Regional level

National level indicators/ scorecards should be adapted for use at the regional level. In most cases this will not involve any substantial changes to the scorecard questions.

### Local level

National level indicators/ scorecards should be adapted for use at the local level where appropriate, according to the local development context and the nature of the intervention being evaluated. For example, is a local intervention targeted at local institutions (e.g. non-governmental and community-based organisations), or at households?

The following additional Track 1 CRM indicator (Indicator 9) is suggested at the local level. Indicator 9 is actually a set of numeric indicators rather than a categorical indicator, and therefore differs in form from

the indicators described above. If desired, Indicator 9 may be converted into a single categorical indicator by replacing the numeric quantities with 'low', 'moderate' and 'high' categories, associated with scores of 0, 1 and 2 respectively (as in the above indicators). For questions 1 and 2, the cut-off points between these categories could be set based on an understanding of the relevant context, or defined in a more 'universal' manner, for example with 'low' being less than 3, 'moderate' being 3-5, and 'high' being more than 5. For the remaining questions, it is suggested that the equivalent categories are defined as less than 30 per cent, 30–60 per cent, and above 60 per cent.

<b>Indicator 9. Uptake of CRM measures</b> Extent and quality of CRM measures such as risk spreading mechanisms (financial, livelihood, social)	<b>No./ proportion</b>	<b>Score (0,1,2)</b>
1. No. of different agricultural products/income streams per household (average)		
2. No. of different non-agricultural income streams per household (average)		
3. Proportion of households using climate forecasts (seasonal, longer-term)		
4. Proportion of households using financial risk spreading mechanisms (e.g. weather-related insurance)		
5. Proportion of households modifying livelihoods as a result of changes in climate risks		
<b>Score</b> (Sum of scores over all 5 questions)		

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The series is open to the submission of papers by IIED staff and partners, and in exceptional circumstances by others doing research that is directly applicable to IIED's strategy and approach. Two types of papers will be considered: first, 'pre-publication' drafts of research or review articles that are intended to be subsequently published in a refereed journal, conference or book publication; second, innovative technical papers that are not necessarily intended for subsequent review and publication.

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# Climate Change

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IIED is an independent, non-profit organisation promoting sustainable patterns of world development through collaborative research, policy studies, networking and knowledge dissemination. The Climate Change Group works with partners to help secure fair and equitable solutions to climate change by combining appropriate support for adaptation by the poor in low- and middle-income countries, with ambitious and practical mitigation targets.

The work of the Climate Change Group focuses on achieving the following objectives:

- Supporting public planning processes in delivering climate resilient development outcomes for the poorest.
- Supporting climate change negotiators from poor and vulnerable countries for equitable, balanced and multilateral solutions to climate change.
- Building capacity to act on the implications of changing ecology and economics for equitable and climate resilient development in the drylands.

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