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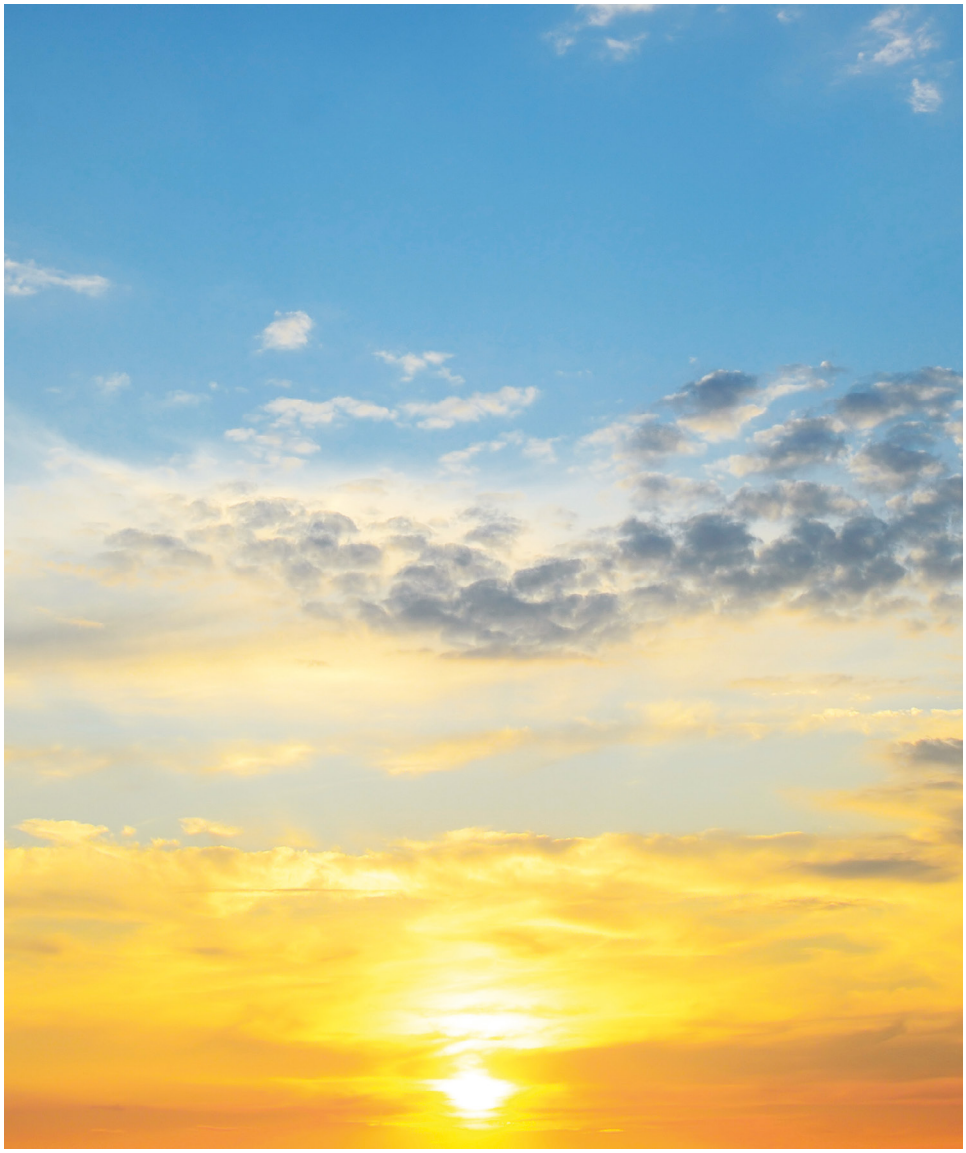
Guidance note 1: Twelve reasons why climate change adaptation M&E is challenging



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Introduction

Climate change adaptation (CCA) refers to how people and systems adjust to the actual or expected effects of climate change. It is often presented as a cyclical process developed in response to climate change impacts or their social, political, and economic consequences. There has been a recent upsurge of interest in CCA among international development agencies resulting in stand-alone adaptation programs as well as efforts to mainstream CCA into existing development strategies. The scaling up of adaptation efforts and the iterative nature of the adaptation process means that Monitoring and Evaluation (M&E) will play a critical role in informing and improving adaptation polices and activities.

"Climate change adaptation is not simply an outcome, but rather a diverse suite of ongoing processes that enable the achievement of development objectives under changing conditions."

Brooks and Frankel-Reed, as cited in Sanahuja 2011: 30

Although many CCA programmes may look similar to other development interventions, they do have specific and distinct characteristics that set them apart. These stem from the complex nature of adaptation itself. CCA is a dynamic process that cuts across scales and sectors of intervention, and extends long past any normal project cycle. It is also inherently uncertain: we cannot be entirely sure about the course of climate change consequences, as these will be shaped by societal decisions taken in the future. How then should we define, measure, and assess the achievements of an adaptation programme?

The complexities inherent in climate adaptation programming call for a nuanced approach to M&E research. This is not, however, always being realised in practice. CCA poses a range of thorny challenges for evaluators. In this Guidance Note, we identify twelve challenges that make M&E of CCA programmes difficult, and highlight strategies to address each. While most are not unique to CCA, together they present a distinctive package of dilemmas that need to be addressed.

Twelve reasons why CCA M&E is challenging – and what do about them.

1. **Adaptation is not an objective or end point**. Adaptation is a process of continual adjustment which, if successful, will enable socio-economic or environmental goals to be achieved despite a changing climate context. There is no clear measure or benchmark that signals that an adaptation programme is 'successful', and adaptation will never be fully achieved within a normal programme cycle. This means that evaluating adaptation often relies on proxy measures which relate to the achievement of broader societal aims. This can make it difficult, and not necessarily desirable, to separate adaptation from overall sustainable development objectives.

   Possible strategies. Understand that adaptation is an evolving process, rather than a static outcome. This does make it harder to measure, and so greater effort needs to be put into the selection of indicators (see Guidance Note 2). Recognising adaptation as a process highlights the importance of M&E approaches that assess overall strategy. Ensure that M&E research is integrated, rather than simply added on, to efforts from the start, and that it is resourced appropriately. M&E can shape future CCA efforts by identifying what is and is not working well, and why.

2. **Long timeframes stretch far beyond common programme cycles**. Climate change is an ongoing, long-term process which will unfold over many years. Significant time lags can exist between interventions and measurable impacts. This poses a dilemma for evaluators, because it will not usually be possible to fully assess the impact of an adaptation programme on climate change vulnerability until considerable time has passed.

   Possible strategies. It is important to understand the 'decision lifetime' of the adaptation intervention being evaluated, as this will influence the M&E methodology. The decision lifetime refers to the lead-time (the period from the first idea to the execution of the project) together with the consequence time (the time period over which the consequences of the

decision emerge). Long timeframes mean the assumptions underpinning a strategy are likely to change over time (Pringle 2011); a Theory of Change approach to programme design (see the Guidance Note 3) is useful for strategic planning within an evolving context. Secondly, view adaptation as an iterative, formative process, and use M&E as a means of checking progress against changing conditions. Use process indicators to determine whether progress is on track, even if impacts cannot be determined yet. Finally, consider flexibility as a measure of success: use M&E processes to assess how an adaptation intervention can cope with unknowns or non-linear change. This is particularly important for long-term projects where there is a risk of becoming 'locked in' to a potentially maladaptive response.

3. **Uncertainties are inherent when implementing CCA interventions.** As Figure 1 illustrates, the 'cascade of uncertainties' associated with climate change presents a significant challenge to evaluators. Often discussion about uncertainty is side-tracked into questions surrounding greenhouse gas emissions or specific climatic projections. While important, it should be understood that these are only two of many issues. Future social and political priorities are even more unpredictable, and will also have profound influence. We do need to keep in mind that climate itself is only one of a range of issues that affect vulnerability to climate change. Uncertainty regarding the rate and extent of sea-level rise is critical to adaptation planners in Bangladesh – but the same is true for population growth.

   Possible strategies: M&E approaches need to acknowledge that many uncertainties are inherent in CCA, and that we cannot fully predict the complex and cascading feedback loops and tipping points that will occur. Adaptation should be approached as an emergent and ever-changing process. To this end, it is imperative that programmes are designed to be flexible and make use of well-designed M&E approaches to track progress. M&E can help you to manage uncertainties by:

   - Establishing baselines so it is possible to track contextual changes;
   - Ensuring that the evaluation process examines the assumptions that underpin a programme as well as emergent conditions that suggest that the strategy may need to be updated;
   - Using flexibility as an important success measure for the intervention (see 'long timescales' challenge).

Figure 1: Uncertainty is inevitable – climate, social, economic and environmental uncertainties all shape adaptation responses. Wilby and Dessai, as cited in Pringle 2013: 4

It is important that programme managers and evaluators learn to live with uncertainty. Some uncertainties may be reduced, but many dimensions of climate change will simply not be predictable. Accepting uncertainty can help us to move from asking 'what is the most likely future?' to 'what kind of future do we want and what decisions do we need to make to get there?' (Pringle 2013).

4. **Measuring avoided impacts**. If our adaptation efforts are designed to reduce the adverse impacts of climate change, how can we judge how much worse it would have been without our intervention? Conversely, if a programme is designed to improve a provincial government's disaster management capacity, what if there is no disaster during the timeframe of the project? How then to approach the evaluation? These issues are not unique to adaptation M&E: indeed, establishing a counterfactual (i.e. what would have happened in the absence of an intervention) is a fairly common M&E challenge. However, long timescales and uncertainties can make it harder to build up a credible picture of what may have happened (or will happen) without CCA efforts.

   Possible strategies. There is now a body of disaster risk reduction (DRR) literature concerning how to measure and evaluate avoided hazards. SEA Change, ReliefWeb, and UNISDR all have excellent online libraries of materials for you to consult. However, establishing a counterfactual may not always be appropriate. In some cases, it may be better to consider the intervention as one of many 'adaptation pathways'. The job of the evaluator is then to assess progress along the chosen pathway (as defined in a Theory of Change – see Guidance Note 3) in the context of a dynamic set of social, economic and environmental conditions (Pringle 2011). It is also important to reflect upon the objectives of the intervention, and to bear in mind that 'holding steady' may itself be the goal. Brooks *et al.* (2011), for example, argue that in many cases successful adaptation simply keeps development 'on track.' Maintaining a community's water security may be an impressive accomplishment if desertification is encroaching. This contrasts sharply with most development programming which seeks to demonstrate improvement.

5. **Diversity of key concepts and definitions**. Adaptation can refer to actions taken (UNFCCC), the process by which adaptation is reached (UNDP, UKCIP), and the outcome of a process that leads to a reduction in risk (UKCIP). Furthermore, CCA activities might focus on building adaptive capacity (the ability of a system or group to adjust) rather than adaptation actions, or commonly a combination of both. Some CCA interventions may only focus on negative consequences and vulnerabilities, while others also take into account how to harness beneficial opportunities (NCCARF). Resilience is another common term and refers to the ability to thrive amidst disturbances in a social or natural system. There are important, and sometimes subtle, distinctions between various terms that are used, and these influence what exactly is being evaluated.

   Possible strategies. Familiarise yourself with the key terms, and consider what the implications are for your M&E framework. It is critical to define concepts clearly at the outset, and to use them consistently and correctly. Otherwise, there may be confusion about what exactly is being measured or assessed. UNFCC has published an online glossary which may come in handy if you are not required to follow the specific language utilised by your donor or implementing partner.

6. **Tracking a 'moving target'**. In a more straightforward development context, we would gather baseline data prior to project implementation, and use that as a benchmark to measure achievements. But when it comes to climate change, we have to recognise that natural and socio-ecological systems undergo continuous change over time and so the use of a fixed baseline may lose some validity. With overall conditions deteriorating or in flux, the baseline data itself may not always be a sound point of reference. This is called the 'shifting baseline' problem.

"Adaptation to climate change is a complex endeavour. It is vast in scope, encompassing many disciplines, stakeholders, levels of engagement, ecosystems and technologies."

Sanahuja 2011: 29

Possible strategies: The programme itself – not just its metrics – will need flexibility to adapt to an evolving climatic context. Simply comparing 'before' and 'after' may be insufficient to evaluate the impact of a programme if the overall context itself is dynamic. Baseline data is useful, but an evaluation should be approached with a wider perspective. Be clear about the purpose of the evaluation at the outset (e.g. accountability, knowledge generation), and professional judgement should be used to consider whether and how the 'before' and 'after' reflects programme outcomes compared to broader contextual dynamics. It is also important that evaluators question original assumptions behind a programme strategy: what seemed appropriate in 2010 might not be by 2020.

7. **Climate change is global – but adaptation is local**. Adaptation programming should reflect conditions *in situ*, whether on a national, sub-national, or local level. Efforts to build resilience and promote adaptation to the effects of climate change will vary radically from place to place, even within the same country. Villagers along Pakistan's southern seacoast and those who live in its northern mountains both have profound vulnerabilities to climate change, but the nature of those vulnerabilities is very different indeed. This means that M&E frameworks will often be required to operate at multiple scales in order to capture the factors which shape adaptation success. The effectiveness of an adaptation programme in the agricultural sector may be shaped by the local cultural practices as well as national or regional governance structures.

   Possible strategies: It is imperative that programme strategies be tailored appropriately; there is no one size fits all. CCA strategies must be nested in the specificities at hand, and grounded in socio-economic, governance, and natural environmental contexts. Be wary of generic approaches and recommendations, and instead prioritise local knowledge and circumstances.

8. **Adaptation spans multiple scales and sectors.** Adaptation encompasses diverse programming strategies, populations, and locales. While it tends to be a local process, progress towards it is often examined at much higher levels, and often across portfolios. It can be very difficult to compare or aggregate results in an effective way because of the eclectic range of sectors, the differential availability of data, and because what it appropriate in one site might not be for another. One consequence of this is that the kind of data that is useful for global policy and comparative research is either difficult to come by or simply not very relevant to evaluating smaller-scale initiatives – and vice versa. The myriad of ways to address 'vulnerability' or 'adaptive capacity' does not lend itself to a unified M&E framework.

   Possible strategies: Recognise that CCA represents a highly diverse set of interventions, and 'let go' of expectations that there are (or should be) clear-cut universal indicators or measures. The diversity and complexity of CCA programming makes it poorly-suited to standardisation. What sets CCA apart from other development programmes is not the sector nor the scale, but rather the underlying analysis of how an endeavour fits into a much larger and emergent change process. Much of climate change adaptation programming promotes, or at least is consistent with, sound development practice. While CCA does not necessarily require discreet body of stand-alone programming, it does call for programmes to be embedded in coherent analysis of both climate change itself and its concomitant adaptation processes. The desire to aggregate can also reflect an over-dependence on quantifiable indicators which, while useful for some purposes, cannot be expected to provide a nuanced picture of adaptation progress.

"Think outside the project box: The challenges of M&E for adaptation are largely shaped by factors outside the individual project cycle. Therefore, developers of M&E systems need to move toward measuring changes in broader systems."

Spearman and McGray 2011: 10

9. **Assessing attribution versus contribution**. Development agencies usually seek to demonstrate that they have brought about a specific, attributable change: to reduce incidence of malaria by improving prevention measures, for example; or to increase the primary school enrolment rates of girls. Doing so demonstrates accountability, justifies their raison d'être and, often, secures further funding. CCA, however, is inherently complex, long-term, and transects programming sectors and levels of intervention. This can become a problem when agencies wish to attribute outcomes directly to investments. It can be almost impossible to untangle the range of interconnected factors that shape a long-term impact or outcome; CCA defies simple cause and effect analyses. Moreover, we may not even understand whether the outcome will be achieved (or whether it is meaningful) for years to come.

   Possible strategies. Instead of seeking to attribute CCA interventions to outcomes, it is usually better to present how a programme or project contributes to broader climate change adaptation goals. Doing so entails an evaluation framework which illustrates the contributing factors and the relationships between them. Such an approach also facilitates evaluations that document lessons learned. More donors are encouraging grantees to make balanced claims about their impact, and reporting that emphasises contribution over attribution helps ground achievements more realistically.

Types of indicators

Process indicators capture progression towards the achievement of an outcome (e.g. 'resilience to drought'), but do not guarantee or measure the final outcome itself.

Output indicators measure the quantity and quality of the goods and services delivered by the programme.

Proxy indicators are (more) easily-measureable 'stand-ins' for concepts or variables for which data is unavailable. The proxy indicator would be highly correlated with what it is trying to achieve – even if it is not an exact measure of the concept or outcome itself. Infant mortality rate (IMR) is an excellent example. IMR is sensitive to a wide range of influences, including socio-economic status and female literacy, as well as a range of health factors. IMR is thus widely used as a proxy for overall health or development status.

10. **No one set of indicators or M&E approaches**. One of the most common requests from SEA Change members is for help finding examples of 'good' climate change adaptation indicators. Indeed, this was the top priority 'knowledge need' that was identified during SEA Change's 2013 Evaluation Conclave (Bours 2013). However, as adaptation is a process rather than an outcome, individual indicators for CCA may not necessarily look much different from those for other development programmes. Furthermore, adaptation cuts across contexts, scales, and sectors. No universal set of indicators will fit these divergent contexts. CCA does not easily lend itself to global measures. (This contrasts with climate change mitigation, which is relatively straightforward to calculate, e.g. greenhouse gas emissions).

    Possible strategies: Recognise that there is no discreet set of CCA indicators per se. What sets CCA indicators apart is whether they combine into a suite that appropriately frames progress towards adaptation and resilience. Adaptation is also contextually specific. Global metrics may be useful for comparative purposes, but they should not replace or substitute ones that are tailored to your own programme.

    Bear in mind that the complexities and uncertainties inherent in climate change are better-served with a broader range of indicators than is usually called for in more straightforward development interventions. Because adaptation is not an outcome that can be achieved in the near term, the medley of indicators chosen for a CCA programme would probably have more emphasis on process and output indicators than would otherwise be expected. We would also include proxy indicators, because concepts like 'vulnerability' and 'resilience' are not easily measured. The appropriate use and choice of indicators will be elaborated upon in Guidance Note 2.

11. **Causing harm: the 'maladaptation' problem**. Hedger et al. (2008) explain that, "if done badly, [adaptation] interventions can actually exacerbate the effects of climate change. This is termed maladaptation" (p. 29). An example might be measures to protect coastal infrastructure that are effective in the short term, but actually compromise environmental integrity in the long run. Levina (2007) documents another example from Mozambique in which households were forcibly relocated away from a flood plain. While their vulnerability to this hazard was indeed reduced, in fact the families experienced considerable harm when they found themselves stranded in marginal circumstances in much worse conditions than those they had left. Harmful, unintended consequences are not unique to climate change adaptation and can be difficult to avoid because CCA is a new and complex field of practice.

Possible strategies. The risk of maladaptation can be reduced by using M&E for learning, reflection, and improvement of ever-evolving strategies. If M&E is prioritised as a key element of project design, then those investing in CCA efforts are more likely to be able to identify and respond to emerging or unintended problems or risks. Engaging a wide range of stakeholders in the M&E process can also help, as you are acknowledging that adaptation can mean different things to different people. This means you have a greater chance of identifying cases where an intervention may be positive for one group but maladaptive for another.

"Practitioners planning interventions should recognise that not all development is adaptation and not all adaptation leads to development."

Spearman and McGray 2011: 11.

12. **Conflicting purposes and fit: when 'sustainable development' and adaptation are not inter-changeable.** Climate change is attracting greater international attention, including donor funding. As a result, some agencies are seeking to frame proposals using CCA language. We have already argued that there is considerable overlap between adaptation and good development practice; however, there are concerns that CCA may become superficial 'window dressing' with which to attract funding for projects which, however valuable in other respects, do not meaningfully contribute to CCA. It may also be the case that very good adaptation strategies may not particularly enhance other development aims in the short term. Drought-resistant crop strains, for example, may be hardier overall but result in lower average yields if rain is plentiful. Moreover, some short-term projects might reduce short-term vulnerability to climate change in a way that is helpful, but not sustainable. An example might be a social enterprise that diversifies rural livelihoods, but requires continuous support.

    Possible strategies: Adaptation programmes should be grounded in a coherent analysis of vulnerabilities to climate change, with strategies that are designed to promote resilience to it. While programme activities may indeed resemble other development programmes, adaptation would be nested in an underlying analysis of the long-term and dynamic complexities that underpin climate change. This would be embedded within the M&E framework itself, and evaluators would play a critical role in ensuring that the programme's strategy is sound from a CCA perspective. To enable this, many experts are now recommending a Theory of Change (ToC) approach. In this method, stakeholders map out an anticipated 'causal pathway of change' towards a long-term outcome or goal, and define how an intervention contributes to or enables this pathway. It is considered one of the most robust approaches to programme design, monitoring, and evaluation of programmes with complex characteristics, and will be described in greater depth in Guidance Note 3.

Conclusion

Climate change represents a 'wicked problem' insofar as it is deeply complex, intractable, and resistant to solution. It threatens to reverse gains made toward sustainable human development, compromising the lives, health, and livelihoods of people across the globe. Climate change adaptation represents a new focus of development programming, although not an entirely novel one: it builds upon existent practice. However, CCA is not simply development 'business as usual'. It encompasses an enormous range of policies and programmes, and is characterised by a specific and thorny set of challenges and dilemmas. Chief among these are the sheer scale, scope, and emergent nature of CCA, which cuts across normal development sectors, levels of interventions, and timeframes. These characteristics highlight how essential it is to make the best possible use of M&E research in order to better inform and improve programme strategies. This Guidance Note demonstrates that by doing so, many of these challenges can be met.

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SEA Change is a free, online Community of Practice on monitoring and evaluation of climate change interventions in Asia and beyond. Their goal is to develop a culture of high quality and rigorous M&E frameworks, approaches and methodologies. They intend to do so by developing partnerships between members of their platform and building member capacity for strengthening discourses and practices on M&E. www.seachangecop.org

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