TAMD Climate Change Indicator- methodological note

Short title	**INDICATOR 9. VULNERABILITY / RESILIENCE** *Numbers of people better able to cope with climate change and variability*
Type or Indicator	*Quantitative/numeric (cumulative), Impact*
Technical definition/ Methodological summary	A key impact of adaptation assistance will be to increase people's ability to cope with and recover from the effects of hazards associated with climate variability and change, i.e. to reduce their vulnerability / increase their resilience in the face of climatic changes and variations. Adaptation interventions should make people less susceptible to harm when they are exposed to such climate hazards. Here we use the concept of vulnerability, due to its widespread adoption within the body of climate change adaptation literature and practice. Broadly speaking, resilience is viewed as inversely related to vulnerability. The approach outlined below may also be applied to the assessment of (changes in) adaptive capacity. This indicator aims to capture reductions in climate vulnerability, while addressing the highly contextual factors that influence vulnerability. It achieves this through the following steps: 1. Identification of a number of variables that capture the key elements of vulnerability within a specific programme/project context. 2. Division of each variable into quintiles (difference between highest value and lowest value, divided by 5). 3. For each variable, individuals or households within a target population (or other appropriate units of analysis) are assigned a score of 1-5 based on their quintile ranking in that variable (e.g. a representative sample of the population). A score of 1 indicates lowest vulnerability, and 5 highest vulnerability (this scoring convention may be reversed if desirable). 4. During, and the end of, and/or after the project, the population is sampled again, and the quintile rankings recalculated. 5. For each sampling period, the numbers of individuals or households in each quintile division are calculated. 6. The numbers of individuals or households moving up or down one or more quintile division are calculated. 7. Changes in resilience are expressed in terms of "N sampled individuals/households reduced their vulnerability (by 1 or more point) across one or more variables."

8. The indicator is the percentage of people or households sampled experiencing a reduction in vulnerability across one or more variable.

Methodological points to note:

1. Not all interventions will lend themselves to measurement of vulnerability at the individual or household level, so this indicator will apply only to interventions that seek to reduce vulnerability, or increase resilience or adaptive capacity, at the community level by targeting (directly or indirectly) individuals and households. Generally speaking, it is unlikely to apply to projects aimed at institutional capacity building.

2. The number of variables used to represent key elements of vulnerability (or resilience or adaptive capacity) should be large enough to capture complexity (i.e. by representing multiple dimensions of vulnerability), but small enough to be manageable, and will vary depending on the context of the intervention.

3. The nature of the variables used to represent vulnerability (or resilience or adaptive capacity) will vary across projects, and these variables will need to be selected on a project-by-project basis, based on a sound understanding of the factors that make people vulnerability/resilient or allow them to respond and adapt to evolving climate risks, and on the mechanisms through which the project seeks to reduce vulnerability, increase resilience or enhance adaptive capacity. Variable selection should be grounded in local knowledge and experience, and the perceptions of those targeted by project interventions should be taken into account through significant stakeholder participation.

4. Development of this indicator will require some investment in gathering baseline data representative of individual or household-level vulnerability/resilience/adaptive capacity at the start of an intervention, and in the collection of comparable data throughout, at the end of, or after the completion of the intervention, depending on the timescales over which impacts are to be measured.

5. Sample sizes should be large enough to be representative of the target population as a whole, and should capture results across different groups (e.g. men and women, male and female headed households, different income groups, ethnic groups, livelihood groups, urban and rural, etc).

6. If reductions in vulnerability for an individual or household as measured by one or more variables are offset by decreases in resilience in an equal or greater number of variables, the individual or household should not be classed

	as experiencing increased resilience.
Rationale	Demonstrating the <u>impacts</u> of adaptation and adaptation-related development interventions on people's ability to cope with and adapt to climate change is key to demonstrating adaptation success, but remains problematic for a number of reasons. First, the timescales associated with the evolution of climate change and of adaptation are longer than those typically associated with programme/project timescales, meaning that it is difficult to assess adaptation in any meaningful way by comparing "before and after" situations using conventional development data. Second, the evolving nature of climate risks means that such development outcome data would somehow need to be "normalised" with respect to changing risk baselines. For example, development outcomes (e.g. measured in terms of poverty or food security) may appear to have remained unchanged or even deteriorated following a development intervention, suggesting that the intervention has been unsuccessful. However, if risks are intensifying, it is possible that such an intervention may have prevented an even greater deterioration in development outcomes. While such a result would mean that the intervention was insufficient to deliver the desired outcomes in the face of climate change, it would be a mistake to conclude that the intervention was of no benefit.

While development/adaptation outcomes may be examined using regular development indicators normalised with respect to changing risk baselines, this is a very challenging task. One way of circumventing the problems of shifting risk baselines and the need to wait beyond a project lifetime to assess actual impacts on development, is to identify proxies for vulnerability, resilience and capacity to adapt to climate hazards and risks. These proxy variables can be used to infer the impacts of development/adaptation interventions on people's capacity to cope with, respond to, recover from, and adapt to climate change, even in the absence of useful data on project impacts in the form of (normalised) standard development indices. Indicators of vulnerability, resilience and/or adaptive capacity therefore represent an intermediate step between measuring programme/project outputs and outcomes on the one hand, and ultimate programme/project impacts in the form or standard development outcomes on the other. Vulnerability/resilience indicators essentially allow us to measure the impact of development interventions on the *state* of a population, with respect to its readiness for, or ability to cope with and adapt to, climate hazards and risks.

The vulnerability indicator as outlined here represents a way of measuring impact as defined in some Theories of Change, which are concerned with the extent to which vulnerable people in poor countries are prepared and equipped to anticipate and |

	respond to risks associated with climate change, including (changes in) climate variability.
Data source	The indicator will be based on data collected at the local level during project implementation, and prior to project implementation where relevant data already exist or are collected as part of a pilot study or campaign to generate baseline data.
Data included	The data will include the a the proportion of the DFID component of ICF spending on adaptation that directly or indirectly targets the community level (e.g. as opposed to institutions or government). Aggregation across programmes in individual countries will be undertaken by CED.
Data calculation	The indicator are expressed in percentage terms, but may also be converted into absolute numbers by scaling up from sampled to target populations, provided sampling is adequate. Overall percentages may be calculated by taking averages across percentages for individual projects. Overall absolute numbers may be calculated by summing scaled up totals based on the ratio of sample to target population size. These aggregations may be performed at the country level, and across countries.
Most recent baseline	Baseline will have to be constructed in mid 2012.
Good performance	The public should be looking for an increase in resilience (i.e. the ability to cope with climate variability and change) among those receiving support.
Return format	Percentage (of people targeted, inferred from percentage of people sampled). Percentage might be converted into absolute numbers, based on size of target population, but this must be underpinned by confidence in the representativeness of the sample.
Data dis-aggregation	Data will be gathered at the individual or household level, and will be disaggregated at collection based on gender and other criteria (e.g. livelihood type, rural/urban, etc). While the variables used to represent resilience/vulnerability will be different across project contexts, some universal categories (women, men, rural, urban, etc.) will be defined for the classification of individuals or households. These classifications should be preserved throughout the aggregation process, so that the final indicator may be expressed in terms of these categories, as well as in terms of a single number (numbers with increased resilience).
Data availability	In some cases data for the relevant variables might be available (depending on which variables are selected). However, it is likely that projects will need to collect baseline data. Projects will also have to collect data to measure changes from the baseline, except where data are collected independently on a

	regular basis, which is unlikely to be the case in most instances.
Time period/ lag	As a minimum requirement, data should be collected at the start and end of the project, and preferably on an on-going basis, in conjunction with the establishment of systems for monitoring adaptation.
Quality assurance measures	We will identify mechanisms for data QA with multilateral partners (possibly using the OECD as an independent arbiter) by June 2013. In DFID, we anticipate that there will be 3 layers of QA: country offices, CED and FCPD. This is unchanged from the "numbers of people supported" methodological note – we might add something about ensuring good vulnerability frameworks in local contexts by involving specialists in this area.
Data issues	This indicator will require significant resources to be invested in data acquisition, and in developing empirically-grounded resilience/vulnerability frameworks in local context. However, this is unavoidable if meaningful, evidence-based statements on the impacts of adaptation initiatives on people's ability to respond to climate change are to be made, and value for money demonstrated.
	Data gathering will most likely consist of sampling based on questionnaires and household surveys, and may necessitate the hiring of specialists in such survey methods and vulnerability assessment, at least initially while methodologies and questionnaires are being developed for specific contexts.
Additional comments	This indicator will be piloted under the *Tracking Adaptation and Measuring Development* (TAMD) framework between 2012 and 2015.
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