AFB/B.14/Inf.6
May 26, 2011

Adaptation Fund Board
Fourteenth Meeting
Bonn, June 20, 2011

PROJECT LEVEL RESULTS FRAMEWORK AND BASELINE GUIDELINE DOCUMENT

BACKGROUND

At its tenth, the Adaptation Fund Board adopted the approach to implementing results based management (RBM), contained in Annex IV of the report of the 10th meeting of the Adaptation Fund Board. The Board also adopted the Strategic Results Framework for the Adaptation Fund and the Adaptation Fund Level Effectiveness and Efficiency Results Framework of the RBM document.

As part of the Board decision on moving forward with RBM, the Board requested the secretariat to develop a practical guide or manual on how project baselines and project results frameworks may be prepared.

The following document contains the finalized guidance document approved by the Board. The guidelines are meant as a tool for project proponents to utilize when designing project or program level results frameworks and developing baselines to submit to the Adaptation Fund.

GUIDANCE DOCUMENT[1]

INTRODUCTION

Adaptation Fund:

The Adaptation Fund (AF), established by the Parties to the UN Framework Convention on Climate Change (UNFCCC), provides direct access to funds for concrete adaptation projects and programmes in developing countries that are Parties to the Kyoto Protocol.

The total amount available for eligible developing-country Parties depends on the market-based monetization of Certified Emission Reductions (CERs), which are the AF's main source of revenue.

Eligible developing-country Parties seeking AF resources should adhere to the AF's Adaptation Fund's Operational Policies and Guidelines,[2] including the following:

Goals of this document:
• Briefly explain the Adaptation Fund's RBM framework; • Clarify AF core indicators, and suggest ways to measure them; and • Suggest how to report outputs and outcomes.
This document does not:
• Provide guidelines to develop and analyze RBM frameworks; • Provide tools for selecting and measuring project specific indicators; or • Help set up or manage project monitoring and evaluation (M&E).

- Obtain the endorsement of a designated authority, chosen by the relevant Government;
- Include a baseline and a results framework/log frame with each final project submission;[3] and
- Submit proposals through an accredited National Implementing Entity (NIE) or through Multilateral Implementing Entities (MIEs).

Structure of this document*:*

This manual helps potential applicants to the Adaptation Fund (AF) develop project or programme baselines and results frameworks (including data collection, analysis, and reporting on AF indicators). It also lays out how to align results frameworks/logframes at the project level with the AF's Strategic Results Framework.

- Section 1 highlights results-based management and details the AF's strategic results framework;

[1] The present guidance document has been developed by extracting and adapting information from other guidance documents and documents from different international organizations and co-operation agencies (OECD, UNDP, IFAD, DANIDA, World Bank, USAID, IADB), in addition to other sources included as References (e.g., Measures of Success and How is your MPA doing guidebooks).
[2] http://adaptation-fund.org/system/files/AFB.Operational_Policies_and_Guidelines.pdf
[3] http://adaptation-fund.org/system/files/AFB.EFC_.1.3.An%20Approach%20to%20Implementing%20RBM.pdf

- Section 2 shows how to compile and assess contextual and baseline data;
- Section 3 provides basic concepts about knowledge management (KM), and how it is integrated into the AF's RBM framework, and includes a short overview on how to develop a KM strategy; and
- Annex 1 describes the standard AF indicators and outlines how to define, measure, and collect data.

SECTION 1: THE ADAPTATION FUND and RESULTS-BASED MANAGEMENT

Chapter 1: Guiding Principles

Results-based management (RBM) provides a sound framework for strategic planning and management by improving learning and accountability.[4]

In RBM, the management strategy, as well as implemented activities, should reflect a commitment to accomplish planned results.[5]

For AF projects, the core of RBM is a results chain that shows the causal relationship between activities, outputs, outcomes, and impact over time.

Central questions of RBM include the following: How do project interventions and other activities contribute to desired outcomes? Why should we set meaningful performance expectations? How should we measure and analyze results? How can learning from evidence help adjust delivery and modify or confirm project and programme design? How should we report performance achieved against expectations?

1. **Key RBM Terms**

The RBM terms in this section reflect those of the United Nations Development Group (UNDG), and are in line with the Organization for Economic Co-operation and Development-Development Assistance Committee (OECD-DAC) definitions.

Results: Changes in a state or condition that derive from a cause-and-effect relationship. A development intervention can set three types of change into motion: output, outcome, and impact.
Goal: The higher-order objective to which a development intervention is intended to contribute.
Impact: Positive and negative long-term effects on identifiable population groups produced by a development intervention. These effects can be economic, socio-cultural, institutional, environmental, technological or of other types.
Outcome: The intended or achieved short-term and medium-term effects of an intervention's outputs, usually requiring the collective effort of partners. Outcomes represent changes in development conditions that occur between the completion of outputs and the achievement of impact.
Outputs: The products and services resulting from the completion of activities within a development intervention.
Assumptions (external factors or risks): Expectations about external factors (or risks) that could affect the progress or success of a development intervention, but over which the management has no direct control.

A monitoring and evaluation (M&E) system must therefore be in place to assess project performance with respect to expected outputs, outcomes, and impact.[6]

Adaptation Fund Strategic Results Framework

The Adaptation Fund Strategic Results Framework includes the long-term goal, outcomes, outputs, and a small set of indicators for the Fund as a whole. The Adaptation Fund works toward the achievement of the overall goal and outcomes. Consequently, any project or programme funded

[4] OECD 2001
[5] IFAD 2007
[6] IFAD 2007

through the AF must align with the Fund's results framework and directly contribute to the overall objective and outcomes outlined. The results architecture for the Fund is framed as follows:[7]

Note: Each Outcome, Output and Indicator is hyperlinked. "Control + Click" on the link will bring you to the relevant section in the Annex. "Control + G" will allow you to return to your original location in the main document.

Objective: Reduce vulnerability and increase adaptive capacity to respond to the impacts of climate change, including variability at local and national levels.

EXPECTED RESULTS	INDICATORS
Goal: Assist developing-country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change in meeting the costs of concrete adaptation projects and programmes in order to implement climate-resilient measures.	
Impact: Increased resiliency at the community, national, and regional levels to climate variability and change.	
Outcome 1: Reduced exposure at national level to climate-related hazards and threats	1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis
Output 1: Risk and vulnerability assessments conducted and updated at a national level	1.1. No. and type of projects that conduct and update risk and vulnerability assessments
	1.2 Development of early warning systems
Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks
	2.2. Number of people with reduced risk to extreme weather events
Output 2.1: Strengthened capacity of national and regional centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events
Output 2.2: Targeted population groups covered by adequate risk reduction systems	2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased
	2.2.1. Percentage of population covered by adequate risk-reduction systems
	2.2.2. No. of people affected by climate variability
Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses
	3.2. Modification in behavior of targeted population
Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1 No. and type of risk reduction actions or strategies introduced at local level
	3.1.2 No. of news outlets in the local press and media that have covered the topic
Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors	4.1. Development sectors' services responsive to evolving needs from changing and variable climate
	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress

[7] AFB/EFC.1/3/rev.1 June 16, 2010

Output 4: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.1. No. and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate variability and change (by type)
	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)
Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress
Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)
Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1 Percentage of households and communities having more secure (increased) access to livelihood assets
	6.2. Percentage of targeted population with sustained climate-resilient livelihoods
Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (physical as well as knowledge) created in support of individual- or community-livelihood strategies
	6.1.2. Type of income sources for households generated under climate change scenario
Outcome 7: Improved policies and regulations that promote and enforce resilience measures	7. Climate change priorities are integrated into national development strategy
Output 7: Improved integration of climate-resilience strategies into country development plans	7.1. No., type, and sector of policies introduced or adjusted to address climate change risks
	7.2. No. or targeted development strategies with incorporated climate change priorities enforced

A Word of Caution

The Adaptation Fund Strategic Framework is not a blueprint for developing a project. Rather, the AF Framework will enable the AF Board to achieve the following:

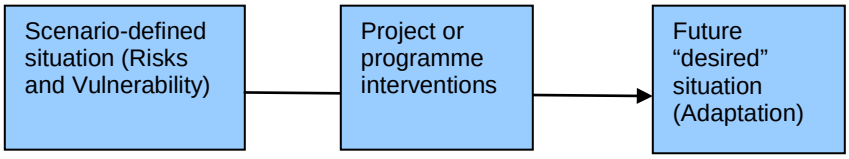
- translate its mandate into tangible results;
- support ongoing planning, management and results monitoring, and measurement;
- lay out objectives and priorities;
- support the measurement of results;
- help demonstrate contributions to higher-level goals (e.g. the CMP goals); and
- measure results at the AF level, not project level (See Chapter 2, Step 3).

Chapter 2: How to Develop a Results Framework for an Adaptation Project[8]

This document divides project design and performance assessment into seven phases or steps to guide strategic planning for results frameworks. Although the steps are presented in a specific order, actual implementation may require the iteration[9] of previous steps.[10]

Step 1: Define the intended effect and scale of interventions

Adaptation Projects are designed to address, through a set of interventions, the adverse impacts of, and risks posed by, climate change (see diagram below).



To define the intended effects and scale interventions, project proponents would need to:

- Draft the project's goal; and
- Define the level and timeframe of the intervention (adaptation projects can be implemented at the community, national, and transboundary level).

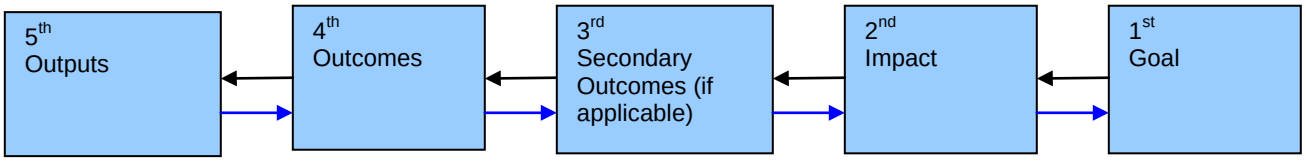
Tools identified for completing Step 1:

- *Stakeholder analysis*:[11] define adaptation partners, actors, donors, communities, etc.
- *Problem analysis or problem tree*: understand the problem at all levels and specifically at the intervention level defined. In this brainstorming technique, project planners and stakeholders employ graphic tree diagrams to identify the causes and effects of problems (problem tree) and then structure project objectives or alternative trees to resolve those problems. Remaining problems (that the project cannot directly address) then become risks/assumptions.
- *Overall contextual assessment*: some knowledge of current and future (scenario) situations need to be identified while defining the draft goal and the level of intervention. Specifically, ***contextual data*** analyzes external "risk" factors that may affect outcomes and especially impacts, but over which the project has no direct control. These factors include, for example, other partners' activities, international price changes, armed conflicts, or the weather.

[8] This guidance document assumes there is already a formed project core team to follow the steps.
[9] Repeatedly going through a series of steps in a process (Measures of Success)
[10] Adaptive management
[11] How to develop stakeholder analysis, problem and alternative trees, as well as logical framework can be found at Margoluis R. and N. Salafsky. 1998. Measures of Success: Designing, Managing, and Monitoring Conservation and Development Projects.

Step 2: Analyze and formulate project objectives and analyze alternatives

As part of project planning, clarify the adaptation project's objectives by defining precise and measurable statements concerning achievable results. Afterwards, identify the strategies or means (activities and corresponding inputs) to meet those objectives. Follow the direction of the black arrows in the diagram below to develop results. Conceptual maps as shown in the diagram are helpful to visualize linkages among results: blue arrows show the relationship of the different elements.



EXAMPLE 1
Goal: "sustained improvement of population health in Country X"

Impact: "reduced population mortality by extreme weather events"

Output: "Staff from healthcare clinics trained and certified on impacts of health and adaptation responses to extreme weather events," and/or "Procedures from healthcare clinics include extreme weather event aspects."

Outcome (first level): "Improved capacity of healthcare clinics to respond to extreme weather events."

Outcome (second level) or secondary outcome: "Quality of health services for population improved and sustained."

Tool identified for completing Step 2:

- Use the project logical framework to conceptualize a project's strategies and objectives. Remember to adapt the Logical Frame Matrix during project implementation.

The Project Logical Frame
The Project Logical Framework, or log frame, is a tool (logic model) for strategic planning. It graphically conceptualizes the hypothesized cause-and-effect relationships of how project resources and activities will help achieve objectives or results. The logic is as follows: *inputs* are used to undertake project *activities* that lead to *outputs* (goods/services*)* that lead to *outcomes (*first level or primary outcomes, second level or secondary outcomes, and so on*)* that contribute to a *project impact and goal.* With this structure, it is then possible to configure indicators and targets, identify data sources and techniques, and assess assumptions for monitoring implementation and results.[12]

The Adaptation Fund encourages broad participation in log frame development, including different management levels and project stakeholders.[13]

[12] IADB, OECD 2001
[13] OECD 2001

Table 1: Project Design Logical Framework Matrix

NARRATIVE SUMMARY	INDICATORS	MEANS OF VERIFICATION[14]	ASSUMPTIONS (external factors or risks)[15]
Goal:			
Impact:			
Secondary Outcome[16]:			
Outcome:			
Outputs:			
Activities:			

A WORD OF CAUTION: Limitations of the Project Log Frame Approach[17]

- **Involve stakeholders**: The log frame is not a mere formality! Involve stakeholders and partners in the process to generate agreement on objectives, outcomes, outputs, and activities, as well as other elements.
- **Assess context:** Assess context and actors (contextual data) as part of the analysis of risks or assumptions since this will also influence achievement of results (see below).
- **Stay flexible:** Use the resulting log frame and its elements as a flexible tool rather than a permanent map of interventions and results.

[14] Described in depth in Step 6 of this Chapter
[15] Described in Step 6 of this Chapter
[16] If needed
[17] OECD 2001

Table 2: Programme Design Logical Framework Matrix[18]

PROGRAMME	PROJECT A	PROJECT B	PROJECT C
Goal:			
Impact:			
Secondary Outcome[19]**:**	Goal of project	Goal of project	Goal of project
Projects comprising the Programme:	Secondary outcome or outcome	Secondary outcome or outcome	Secondary outcome or outcome
	Outputs/components	Outputs/components	Outputs/components
	Activities	Activities	Activities

Programme Log frames:

- The Programme has specific outcomes overall
- The Programme consists of projects instead of Outputs/components
- The Programme's outcome(s) is the Goal of each of its projects.

[18] Extracted from IADB
[19] If needed

Step 3: Align project objective(s) with Adaptation Fund Strategic Outcome(s)

Align project objective(s) with the Adaptation Fund Strategic framework to ensure the integration of Adaptation Fund Strategic Outcomes into the project or programme level, and M&E system, as well as to ensure its contribution to RBM, and project objective(s).

- Review the Adaptation Fund Strategic Framework (See Chapter 1, Section 1).
- Include any project outcomes that support or contribute toward the achievement of any Adaptation Fund Strategic outcome(s); and
- Assess how Adaptation Fund Strategic Outcome(s) align(s) with Project Outcome(s).

EXAMPLE 2

For Example 1 above, the alignment could result in the following chart (other visual aids could be used):

ADAPTATION FUND STRATEGIC OUTCOMES	PROJECT OUTCOMES	ALIGNMENT ASSESSMENT
Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	"Improved capacity of healthcare clinics to respond to extreme weather events."	The capacity of healthcare clinics can be strengthened to reduce risks associated with climate change.
Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors	"Improved capacity of healthcare clinics to respond to extreme weather events." And "quality of health services improved and sustained."	Healthcare clinics are part of relevant development sectors.

RECOMMENDATION

Through a similar exercise, align project outcomes with other national, regional, and/or local strategic framework elements (for example, NAPAs), which would connect the project to other identified priorities

Example questions include: Is the project concept in line with the national and development priorities and plans of the country? Will project outcomes contribute to national development priorities and plans?

Step 4: Include project indicators and select core Adaptation Fund indicators

Develop indicators to measure implementation progress and achievement of results. Indicators identify what to measure along a range or dimension (e.g., numbers of workshops held or publications produced, percent of producers adopting new technology, ratio of female to male students, etc.)..

The log frame provides a structure to build these indicators.

Process of selecting indicators

When selecting/identifying indicators, remember the following steps:

1. Involve representatives from implementing agencies, government, beneficiaries, and other stakeholders. Be sure to include stakeholders and direct actors identified during the stakeholder analysis. A participatory approach to selecting indicators not only draws on stakeholders' experience and knowledge, it also helps obtain their consensus and promotes ownership.

2. Brainstorm to develop a general list of possible indicators for each objective and result (activities, outputs, outcomes, and so on). This initial list can consider all stakeholder perspectives, and not worry about how to measure them.

3. Assess each indicator on the general/initial list against a checklist of criteria for judging its suitability and effectiveness (See Table 3 below).

4. Select the "best" indicators that will provide useful information at an affordable cost; choose only a few—the minimum needed to characterize the most basic and important measures.

Table 3: Checklist for selecting proper indicators

CRITERIA/ATTRIBUTES[20]	CONSIDER
Valid	Does the indicator measure the result?
Precise	Do stakeholders agree on exactly what the indicator measures?
Practical, affordable, and simple	Is information actually available at reasonable cost? Will it be easy to collect and analyze?
Reliable	Is it a consistent measure over time?
Sensitive	When the result changes, will it continue to be susceptible to change?
Clear	Are we sure whether an increase is good or bad?
Useful	Will the information be useful for decision-making, accountability, and learning?
Owned	Do stakeholders agree this indicator makes sense to use?

RECOMMENDATIONS

- Recognize there is probably no "ideal" indicator, and no perfect technique for developing it.
- Project proponents will need to make trade-offs among indicator selection criteria that balance pros and cons. For example, if the optimal indicator is not feasible, accept a more

[20] Adapted from CIDA's checklist of good indicators.

realistic one; being comprehensive may also conflict with the need to limit the number of indicators.
- Both quantitative and qualitative indicators may be useful; selecting one or the other should depend on the nature of the desired result.

EXAMPLE 3

For Example 1 above, one possible indicator at the output and outcome level respectively could include:

- Project output: "Staff from healthcare clinics trained and certified on impacts of health and adaptation responses to extreme weather events."

- Output indicator: Number of staff trained and certified (by the X certification program) from each clinic on impacts of health and adaptation responses to extreme weather events for the population in an area of intervention.

Consider how the indicator addresses the criteria in Table 3:

  - Practical, affordable, and simple: the roster of healthcare-clinic employees is usually kept and accessible to project staff (if certain formal procedures to collect the information are followed);

  - Reliable: the indicator is reliable if baseline and context information exist to track progress;

  - Precise: the indicator can be expressed in percentages to understand trends; and

  - Clear: an increase is beneficial since it's assumed that more staff trained on responses to extreme weather events increase the chances that clinic personnel have knowledge of responses. Quality of training could also be included as an indicator for a more complete view of training aspects, particularly to understand if trained staff is applying what was taught.

- Secondary outcome: "Quality of health services for population improved and sustained."

- Secondary outcome indicator: Percentage of population in the area of intervention that indicates a high degree of satisfaction with the health services provided after extreme weather events by the end of the project (and after an extreme weather event).

A survey would be needed to measure this indicator. The indicator is reliable if context and baseline information are present. Degree of satisfaction in a population could change also by other factors: extremity of the weather event, economic crises in country/area of intervention, etc. Therefore, surveys would need to consider context information when collecting and analyzing data, as well as to understand estimated frequency of extreme weather events.

Selecting indicators from the Adaptation Fund set of indicators

The Adaptation Fund developed a menu of standard indicators to measure and report on Fund level outputs, outcomes, and impacts.[21] The menu identifies standard performance indicators (mostly at the project output and outcome levels) that will enable comparable data to be aggregated across similar types of projects to the Fund-wide level.

Selecting indicators from the set:

1. Review the menu of core/standard indicators in Annex 1 of this Guidance Document. The list of indicators is not comprehensive to all outputs that projects could use.

2. Identify at least one output *and* one outcome indicator from the menu that can adjust most effectively to the project's outcome and outputs. Choose only output and outcome indicators relevant to the project characteristics and what is set to be achieved.

3. Select project-specific indicators to reflect country-specific objectives and reporting requirements. The AF Board would not aggregate these indicators, but rather track progress on achieving the project targets. Because each project operates in a specific context, other important elements of monitoring and evaluation won't be included in the Fund's Performance and Reporting System. Therefore, each project will need to develop its own set of output and outcome indicators that link directly to the Fund-level objectives.

4. Include selected indicators into the project logical framework (and monitoring plan).

RECOMMENDATIONS

- Try choosing only a few indicators to avoid over-burdening monitoring systems.
- The project design (Steps 1 and 2) should be independent of the AF set of indicators.
- Select these few standard indicators through collaboration, similar to the process of selecting other project indicators.

EXAMPLE 4

For Example 1 and 2 above, the alignment would result in the following chart:

ADAPTATION FUND STRATEGIC INDICATORS	PROJECT INDICATORS
2.1 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks	No. of healthcare clinics with increased capacity to minimize exposure in intervention area
2.1.1 No. of staff trained to respond to, and mitigate impacts of, climate-related events	No. of staff from healthcare clinics trained
2.1.3. No. of people affected by climate variability	No. of people affected by climate variability in the area of intervention / or No. of deaths after extreme weather events
4.1. Development sectors' services (health and social services) responsive to needs evolving from changing and variable climate	"Quality of health services for population improved and sustained in the area of intervention."

[21] Similar as to those provided by the *World Bank's Performance Monitoring Indicators* (1996), DANIDA's *First Guidelines for an Output and Outcome Indicator System*, 1998.

Step 5: Set targets

Once indicators have been developed, collect actual baseline values and targets[22] for each indicator, ideally just before the project gets underway (see Section 2). Baseline values, which measure conditions at the beginning of a project, are needed to set realistic targets for accomplishment within the constraints of resources and time available.[23] Having a "baseline" will be important later to gauge progress.

Targets are a commitment that helps clarify what needs to be achieved and by when. As such, targets help direct project staff and managers to the impending tasks.

Final targets are values or conditions to be achieved by the end of the project, while medium-term or interim targets are anticipated values at various points-in-time over project implementation.

> ***Target:*** A variable that helps verify changes in the development intervention or shows results relative to what was planned. A target specifies a particular value for an indicator to be accomplished within a given time frame. (For example, producers' rate of adaptation to new technologies increased to 60% by 2013).

Targets can help a project in numerous ways:

- Focus objectives;
- Validate a project by concretely describing the desired impact;
- Orient managers and staff to the desired tasks;
- Clarify the results for which managers will be held responsible; and
- Tell stakeholders how well a project is progressing.[24]

Before defining realistic targets, remember to understand baseline information first.

EXAMPLE 5

EXPECTED RESULTS	INDICATORS	BASELINE DATA	TARGETS
Secondary Outcome:	Quality of service of healthcare clinics in area of intervention.	See below	Target (if baseline is known): At least 80% of the population in the area of intervention that indicates a high degree of satisfaction with the health services provided after extreme weather events by end of project (and after an extreme weather event). Target (if baseline is unknown): An increase by at least 50% from the baseline level of population in the area of intervention that indicates a high degree of satisfaction with the health services provided after extreme weather events by end of project (and after an extreme weather event).
Outputs:	Number of staff trained and certified (by the X certification program) from each clinic on impacts of health and adaptation responses to extreme weather events for population in intervention area.	See below	Target: At least 40 staff trained and certified by end of project from each clinic where project intervenes.

[22] Project level targets should also be included in the project log frame (AFB 2010)
[23] OECD 2001
[24] Margoluis R. and N. Salafsky 1998

A WORD OF CAUTION

Setting the right targets helps foster an evaluative culture.[25] If targets are unrealistically high and therefore unachievable, integrity and confidence will suffer, and could incite people to conceal or alter data. If targets are too low and easily achievable, credibility could suffer and might achieve less than is possible. Therefore, seek attainable targets that are just out of reach.

[25] http://ageconsearch.umn.edu/bitstream/52535/2/ILAC_WorkingPaper_No8_EvaluativeCulture_Mayne.pdf

Step 6: Monitor (collect) data

Once indicators and targets are identified, collect actual data for each indicator at regular periods (monitoring).

Both project implementation and results require monitoring:

- *Project implementation monitoring* requires constant documentation of data on project activities and operations such as tracking funds and other inputs, as well as processes. It includes keeping high-quality financial accounts and field records of interventions, as well as recurrent checking of work plans and budgets.

- *Results monitoring* involves the periodic collection of data on the project's actual accomplishment of results (outputs, outcomes, and impacts). It measures whether a project is completing its objectives and responds to the question: what results have been accomplished relative to what was planned (targeted)?

Project staff frequently generates data on project outputs, which are central to reporting systems. Data on outcomes are typically compiled from inexpensive consultations with project beneficiaries, short surveys or rapid appraisal methods. Data on impacts involves performing expensive surveys or using existing data sources such as national surveys, censuses, etc.

Data collection approaches and techniques[26]
Monitoring project performance at the different levels of the log frame hierarchy typically involves different data sources and methods, frequencies of collection, and assignment of responsibility. Good practices entail the development of ***performance monitoring plans*** at the beginning of the project that explain how, when, and who will collect data.

Table 4: A Matrix Framework Tool to Record Summary Information about Monitoring Plans

EXPECTED RESULTS	INDICATORS	BASELINE DATA	TARGETS	DATA SOURCES	DATA COLLECTION METHODS	FREQUENCY	RESPONSIBILITY
Goal:							
Impact:							
Secondary Outcome:							
Outcome:							
Outputs:							
Activities:							

[26] OECD 2001

As the first two columns were described above and/or further described in Section 2 of this document, this section will focus on the last four columns.

Activities Data: Used for analysis of performance issues such as economy and efficiency.

- *Data Source*: Typically from project financial accounts and management reports from field sites.
- *Data Collection Methods*: A good financial accounting system keeps track of expenditures and provides cost data. As the level in the log frame hierarchy increases, data collection efforts will grow more expensive and data sources will become more difficult to find.
- *Frequency*: Primarily for day-to-day operations and short-term decisions.
- *Responsibility*: Project staff with frequent inspection to assess fulfilment of work plans and budget. Place responsibility for data collection closer to those using the data.

Output Data: Used for short- to medium-term management decisions to improve output quality, equitable distribution to beneficiaries, productivity, and efficiency, etc.

- *Data Source*: Tends to originate from project field reports maintained by project staff.
- *Data Collection Methods*: Project management systems.
- *Frequency*: The data are combined and reported to higher project management levels at regular periods (for example, bi-annually or annually).
- *Responsibility*: Project field staff.

Outcome Data: Useful for medium-term management decisions to improve beneficiary satisfaction or changes in behavior, and to evaluate effectiveness in achieving intermediate results.

- *Data source*: Follow-up surveys with project beneficiaries.
- *Data Collection Methods*: These tend to be affordable surveys, which assemble information on beneficiaries' responses to, and satisfaction with, project outputs, as well as changes in their knowledge[27] and behaviors. These methods include informal consultations or mini surveys, market research, rapid appraisal or participatory methods. Divide data by beneficiaries' socio-economic characteristics to assist later analysis of equitable distribution of benefits, etc. These methods do involve data collection and social science research skills or training beyond regular record keeping and thus should be planned and budgeted for in project design.
- *Frequency*: Annually or when feedback is needed.
- *Responsibility*: Project staff.

Impact data: Recording data (baseline and targets) up to the secondary outcome level, which falls within project managers' responsibility, should give solid insight and linkages toward impacts, and the ability of measuring impact data later down the line — usually during evaluation or follow-up evaluations.

Criteria for selecting data collection methods and sources

The choice of a data collection technique and source can be central for data quality. It can determine, for example, validity and reliability of data. Some techniques and sources may be too expensive or time-consuming, however. For example, extension agents' reports or a production survey could generate information on a producer's use of new technologies. Selecting the survey may result in greater statistical validity and reliability of data; employing the extension agents' report, however, may result in more practical and affordable data collection.

[27] See Section 3 of this guidance.

RECOMMENDATION

The selection process should balance the quality of the data (how reliable it is among users) and the cost and time to collect it or retrieve it.

When selecting data collection methods, review the following criteria:[28]

CRITERIA/ATTRIBUTES	CONSIDER
Validity:	Do the data mean what we think? Do the measurement techniques indeed measure what they declare to measure?
Reliability:	Is it a consistent measure over time? Does the measure, after applied repeatedly to a given situation, consistently yield the same results if the circumstances remained unchanged between applications?
Timeliness:	Can the data be collected routinely enough to inform management's decision-making? Some methods can be implemented more quickly, which makes them better when data are needed regularly or immediately.
Costs:	Is there any budget constraint to consider before selecting methods? Some complex surveys are expensive.
Formal versus informal methods:	Informal methods include casual conversations or unstructured site visits, which tend to be inexpensive and quick to implement, but can compromise credibility. Formal methods consist of censuses and sample surveys, which have high reliability and validity, but are more expensive, require extensive technical skills, and are time consuming. Between the formal and informal methods are rapid appraisals, which include focus groups, community interviews, key informant interviews, direct observation, etc.

Quantitative versus Qualitative Methods of Collecting Data: Consider the utility of both types of information and balance both as required.

- *Quantitative methods*: Measures that involve continual, equal-interval scales with true zero points (such as GNP per capita, infant mortality rates, school enrolment rates, etc).

- *Qualitative methods:* Data that can be captured only by descriptive narrative.

- *Combination*: Data for which the frequency of various events can be counted and categorized, and perhaps even rank-ordered. For example, much of the performance data collected on policy reform, institutional strengthening, and beneficiaries feedback are measured on some type of ranked (ordinal) scale. Such scales, when clearly put into practice, show how to quantify more subjective information usefully and effectively.[29]

Risks/Assumptions at different hierarchy levels — implication for accountability

As the project log frame climbs up the ladder, more external influences and risks exist with less management control of such risks. In addition, project/programme proponents should assess the likelihood of sustainability of planned outcomes. Sustainability is understood as the likelihood of the achieved outcomes continuing after the project ends.

Assessing the sustainability of outcomes includes reviewing at least four dimensions of risks and assumptions:

[28] Extracted and Adapted from OECD 2001
[29] OECD 2001

- *Financial and economic:* Could financial or economic risks jeopardize sustainability of planned project/programme outcomes? What is the likelihood of financial and economic resources being available once the AF grant ends?

- *Socio-political:* Could social or political risks jeopardize sustainability of planned project outcomes? Is there sufficient public/ stakeholder awareness to support the project's long-term objectives?

- *Institutional framework and governance:* Do the legal frameworks, policies, and governance structures within which the project operates pose risks that may jeopardize sustainability of project benefits? Are requisite systems for accountability, transparency, and required technical know-how, in place?

- *Environmental:* Could environmental risks jeopardize sustainability of project/programme outcomes?

Contextual Data: For analyzing performance, as noted earlier, it is also important to collect data on the project's context. This will shed light on risks and assumptions at the different hierarchy levels and baseline information. Contextual data can help explain project accomplishment or failure, and attribute performance to various causes.

Step 7: Review and report data

This step revolves around monitoring, reporting, and evaluation:

- *Monitoring* can track progress toward a set of benchmarks, and measure it towards outcomes;

- *Reporting* captures progress and results, and is an important accountability tool; and

- *Evaluation* validates results and can make overall judgments about intended and unintended results (e.g., increased resilience, decreased vulnerability, improved cost-effectiveness).

The Adaptation Fund requires project proponents to complete an annual project performance report (PPR).[30] Once the project is approved and the first funds allocated, proponents would monitor projects continually, submitting a PPR each year to chart progress. Projects over three years in duration would require a mid-term evaluation; all projects require a final evaluation.

In addition to reporting through the PPR, project proponents must develop a project-level M&E plan and reporting system. Review of project performance monitoring data typically involves comparing actual results against planned results or targets (i.e., following information set on the monitoring plan matrix). In addition, the Board reserves the right to carry out independent and external reviews or evaluations of projects/programmes whenever it deems these necessary. The Board will cover costs of these reviews.[31]

[30] See AFB/EFC.1/3/rev.1 June 16, 2010

[31] Operational Guidelines and Policies of the Adaptation Fund Board, approved through Decision B.7/2 at the 7th meeting of the Adaptation Fund Board. September 2009.

SECTION 2: GUIDING PRINCIPLES FOR PROJECT-LEVEL BASELINES INFORMATION

Every project requires a baseline that incorporates information from vulnerability and needs assessments, and existing secondary sources. The information would be strictly aligned with each selected indicator tracked by the project. Staff should complete baselines by the start of the project so that proponents can accurately measure any change and the contribution to that change during the life of the project.[32]

Why are baseline data necessary?

> ***Baseline data:*** An analysis describing the situation prior to a development intervention, against which progress can be assessed or comparisons made.[33]

Baseline data are important for:[34]

- Characterizing the prevailing conditions that inform an intervention;
- Describing average conditions, spatial, and temporal variability and anomalous events, some of which can affect the intervention significantly;
- Identifying possible ongoing trends or cycles; and
- Creating a reference with which to compare future changes.

[32] AFB 2010
[33] OECD 2001
[34] Extracted and adapted from Ebi et al. 2005

Chapter 1: An introduction to Climate Change Adaptation and Vulnerability Baseline Information

Every adaptation project or programme should present baselines with respect to climate, development, vulnerability, and adaptive capacity. Projects should explicitly lay out their climate change scenarios and adaptation targets, as well as the linkages between the two. Monitor climate variability during the project, and test adaptation measures if scenario–like conditions occur during implementation.[35]

In adaptation projects, baselines could take two primary forms:

1. Project baselines

Since project baselines generally focus on the priority system, they are therefore site-specific and limited to the project's duration. Depending on a project's approach, a baseline could be described by a set of quantitative or qualitative indicators (see above), and may take the form of a vulnerability baseline[36], a climate-risk baseline, an adaptive capacity baseline, or an adaptation baseline. The project baseline answers the questions: where is the project starting from?

Since reducing vulnerability is the foundation of adaptation, it calls for a detailed understanding of who is vulnerable and why. This involves both analysis of current exposure to climate shocks and stresses, and model-based analysis of future climate impacts. With this information, proponents can design and implement appropriate adaptation strategies. Other critical components of the adaptation process include monitoring and evaluating the effectiveness of activities and outputs, as well as sharing knowledge[37] and lessons learned.[38]

Project baselines can later be used in the monitoring and evaluation process to measure change (in, for example, vulnerability, adaptive capacity, climate risk) in the priority system, and the effectiveness of adaptation strategies, policies, and measures.[39]

2. Reference and adaptation scenarios

Depending on project needs and design, project proponents may choose to develop ***reference*** scenarios that represent future conditions in the priority system in the absence of climate adaptation. They may also develop scenarios that apply various ***adaptation*** measures.

Project proponents may compare both reference and adaptation scenarios with baselines to evaluate the implications of various adaptation strategies, policies, and measures. Unlike project baselines, scenarios deal with the longer term and can inform policy decisions at the strategic planning level.[40]

[35] Valencia 2009
[36] For example, vulnerability baseline describes information on vulnerability aspects in the area of intervention.
[37] See Section 3 of this guidance.
[38] CARE 2010
[39] Ebi, K.L., B. Lim, and Y. Aguilar
[40] Ebi, K.L., B. Lim, and Y. Aguilar

Chapter 2: Assessment tools to establish baseline information[41]

How to start collecting baseline data?

1. Review previous studies, expert opinion, and policy context and synthesize information on current vulnerability, climate risk, and current adaptation measurements.

2. Describe current adaptation policies and measures that influence the ability to cope successfully with climate variability.

3. Develop baseline indicators of vulnerability and adaptive capacity, including historical trends. Is there a pattern of change — a trend upward or downward — over the last 5 or 10 years that can be drawn from existing records or statistics?

Data sources

- *Primary or secondary sources*:
  - Context section of current sectoral, regional, and/or national plans and strategies;
  - Specialized journals;
  - Monitoring programmes, GIS data, aerial photos;
  - Current and historical maps;
  - Context and results of other projects;
  - Interviews with relevant officials; and
  - Information from experts and/or the public; etc.

- *Baseline data:* current data available on the Intergovernmental Panel on Climate Change Data Distribution Centre (IPCC-DDC) website, as well as other sources.

- *Historic/baseline data*: current vulnerabilities (trend analysis, vulnerability mapping), current adaptation measures (consultations, field interviews, literature review).

- *Scenarios:* future impacts and vulnerabilities (impact assessment, vulnerability mapping), adaptation to future impacts (multicriteria analysis, cost–benefit analysis, consultations, etc.).

Some data collection methods:

- Trend analysis, vulnerability mapping (food insecurity, poverty mapping, natural disaster losses), multicriteria analysis.

- Cost–benefit analysis, vulnerability reduction assessment.

Frequency and Responsibility:

As previously noted, baseline data should be compiled before the project or programme starts. If major baseline data are not identified, proposals should show how they will address lack of a baseline within one year of implementation. Project proponents are responsible for collection and maintenance of project baseline data.

[41] Based on Ebi, K.L., B. Lim, and Y. Aguilar, Ivan Dario, presentation Jose A. Marengo CCST/INPE, Sao Paulo Brazil

EXAMPLE 6

For previous examples:

EXPECTED RESULTS	INDICATORS	BASELINE DATA	TARGETS
Secondary Outcome:	Quality of service of healthcare clinics in area of intervention.	10% of the population in the area of intervention that indicates a high degree of satisfaction with the health services provided after last extreme weather event (Hurricane X). (Secondary data: Survey applied by Project Team or Institution in 2009 after extreme weather event).	Target (if baseline is known): At least 80% of the population in the area of intervention that indicates a high degree of satisfaction with the health services provided after extreme weather events by end of project (and after an extreme weather event). Target (if baseline is unknown): An increase by at least 50% from the baseline level of population in the area of intervention that indicates a high degree of satisfaction with the health services provided after extreme weather events by end of project (and after an extreme weather event).
Outputs:	Number of staff trained and certified.	Baseline information: 0 staff trained and certified in all healthcare clinics addressed by project.	Target: At least 40 staff trained and certified by end of project from each clinic (5) where project intervenes.

RECOMMENDATIONS when baseline is unidentified[42] at project inception:

- Collect baseline data immediately once the project starts.

- Complete baseline before obtaining any results for project/programme activity(ies) to measure accurately any change and the contribution to that change during the life of the project.[43]

OVERALL RECOMMENDATION:

- Understand uncertainties and work with "no regrets."

Uncertainty is "an expression of the degree to which a value (e.g., the future state of the climate system) is unknown. Uncertainty can result from lack of information or from disagreement about what is known or even knowable. It may have many types of sources, from quantifiable errors in the data to ambiguously defined concepts or terminology, or uncertain projections of human behavior. Uncertainty can therefore be represented by quantitative measures (e.g., a range of values calculated by various models) or by qualitative statements (e.g., reflecting the judgment of a team of experts)."[44]

[42] Because of cost to obtain baseline data, lack of secondary sources or specific information, etc.
[43] AFB 2010
[44] IPCC 2007

Typology of Uncertainties:[45]

TYPE:	INDICATIVE EXAMPLES OF SOURCES:	TYPICAL APPROACHES OR CONSIDERATIONS:
Unpredictability	Projections of human behavior not easily amenable to prediction (e.g. evolution of political systems). Chaotic components of complex systems.	Use scenarios spanning a plausible range, clearly stating assumptions, limits considered, and subjective judgments. Ranges from ensembles of model runs.
Structural uncertainty	Inadequate models; incomplete or competing conceptual frameworks; lack of agreement on model structure; ambiguous system boundaries or definitions; significant processes or relationships wrongly specified or not considered.	Specify assumptions and system definitions clearly; compare models with observations for a range of conditions; and assess maturity of the underlying science and degree to which understanding is based on fundamental concepts tested in other areas.
Value uncertainty	Missing, inaccurate or non-representative data; inappropriate spatial or temporal resolution; poorly known or changing model parameters.	Analyze statistical properties of sets of values (observations, model ensemble results, etc); bootstrap and hierarchical statistical tests; and comparison of models with observations.

Consider this reflection on uncertainties prepared by CARE:

"In view of the uncertainties associated with climate change projections, it is important to identify the range of short- to long-term climate scenarios that may occur in a project's geographical area. The project team should design the project/intervention to address the impacts of current climate variability, while at the same time preparing communities to effectively deal with medium- to longer-term climate impacts.

"Given that climatic conditions might change in ways that cannot be accurately predicted at this time, the team should develop contingency plans that would enable them to adapt the project to other climate scenarios. For example, a project in a drought-prone area that could get wetter with climate change could put in place contingency plans to deal with increased rainfall and possible flooding.

"In this example, the contingency plans should clearly outline activities that the project would implement to take advantage of increased rainfall and deal with floods. In addition, the plans should identify resources that would be required, indicate what resources are currently available, as well as potential sources of additional support that could be leveraged in the event of increased rain and floods."[46]

In spite of the existence of significant uncertainty on climate change predictions (specifically at the local level), adaptation should focus on "no regrets" activities that will increase people's capacity to deal with *a range of likely climate change scenarios*.[47]

"No regrets" policy or interventions: A policy [or intervention] that would generate net social and/or economic benefits irrespective of whether or not anthropogenic climate change occurs.[48]

[45] http://www.ipcc.ch/pdf/supporting-material/uncertainty-guidance-note.pdf
[46] CARE 2010
[47] CARE 2010
[48] IPCC 2007

SECTION 3: KNOWLEDGE MANAGEMENT

Knowledge Management in the Adaptation Fund

The Adaptation Fund has included knowledge management as part of its Results-Based Management Framework at the Fund level. While Knowledge Management (KM) is critical for any organization, it is even more so for the Adaptation Fund for two reasons: projects and programmes are still relatively new, and the Fund is piloting direct access to countries. Project proponents must therefore systematically keep track of experiences gained from the Fund and analyze them periodically both to enrich the global knowledge on climate change adaptation and to accelerate understanding about what kinds of interventions work.

BASIC CONCEPTS

Knowledge is the understanding of a reality based on people's experience, analysis, and exchange. To be transmitted, knowledge needs to be captured and systematized. For this reason, Knowledge Management (KM) can be defined as the actions developed (gathering data; analyzing processes, results, and personal experiences; creating and disseminating lessons learned, etc.) so the knowledge of an individual or institution reaches the largest number of beneficiaries as quickly as possible.

EXAMPLE: Communication campaigns backed-up by effective knowledge management efforts have been critical to develop and improve pandemic preparedness plans worldwide. An increasing number of national response strategies now include KM and communications as a core element.

KM activities can be carried out in a variety of ways based on the environment and resources available. The following key concepts, however, are essential for any KM path:

Keep in mind that KM and communication are complementary. Not only do they often involve the same or similar instruments, processes, and actors, they both help increase the effectiveness and impact of projects. The integration of knowledge management with communication reduces costs significantly and generates more consistent products, avoiding duplication of efforts and enhancing the effectiveness of both.

1. **Strategy:** A KM strategy sets the long-term direction, scope, and objectives (short- and long-term) that are systematically pursued and eventually achieved through proper resource planning. It includes an action plan to achieve the goal of learning from experience and sharing that knowledge with all stakeholders and with the global community as reference for future projects.

2. **Change Management:** To be effective, KM activities need the support of project managers and "willing" actors. If the environment is unprepared for KM activities, the "culture" and work mentality of project team members and key stakeholders ideally need to change. It is essential to build consensus among project team members and key stakeholders on why and how KM can improve the project itself, and how it can raise awareness on the importance of capturing and sharing lessons learned locally, regionally, and globally.

KM STRATEGY EXPECTED BENEFITS

1. Project impact increased through learning and access to information.

2. Synergy enhanced between local and global knowledge on the subject and the region where the project takes place.

3. Knowledge generated from the project captured effectively to facilitate its dissemination at a local, regional, and global level.

4. The project and its achievements well positioned toward the AF among development interventions at a regional, local, and country level.

5. Policies and agenda of local, regional, and international institutions modified to include the project lessons learned based on inputs and evidence.

6. Stakeholder and user networks strengthened and/or created to guarantee further generation and dissemination of knowledge after the project ends.

7. Resources devoted to KM (and communication) in the project coordinated to maximize efficiency and effectiveness.

HOW TO DEVELOP A KM STRATEGY FOR AN ADAPTATION PROJECT

Consider these principles when developing a KM strategy:

- **Synergy:** Actions by different stakeholders can multiply expected results and impact;

- **Transparency:** KM helps project management and evaluation become more transparent by easing access to data and information on the processes and results obtained;

- **Participation and Inclusion:** Inputs from all stakeholders will help the overall success of the project, as well as enrich local and global knowledge;

- **Flexibility:** The KM strategy is a living document that should adapt to possible changes and unforeseen events during the project;

- **Relevance:** The KM strategy must consider relevance and utility of knowledge for different stakeholders. It should capture and systematize experiences and knowledge that can improve the project itself, as well as future interventions, processes, projects, and policies; and

- **Cost-effectiveness:** While creating the action plan, evaluate the cost-benefit of each KM activity and product to stay realistic, prioritizing activities that could generate the greatest impact for each dollar invested.

Follow these steps to develop a KM Strategy:[49]

Step 1: Analyze existing knowledge, data, and communication products and media

Each country is unique when it comes to creating a capacity and knowledge baseline. For this reason, most projects will include preparation work to improve knowledge management, collect and processing missing data, and assess communication needs and tools. This stage is crucial for both the project's success and the quality of the assessment, and has a direct impact on results.

Actions identified for completing Step 1

- Assess Human Resources
- Assess Financial and Infrastructure Resources
- Analyze Stakeholders
- Assess Overall Context
- Develop Knowledge Map

Step 2: Design the KM strategy

The strategy regulates the production, management, discussion, and dissemination of knowledge and information; its design should involve the entire project team and key stakeholders. Developing a strategy entails adopting a long-term vision, setting KM goals, and identifying annual work plans to put the strategy into action and help monitor its implementation.

A KM strategy should answer the following questions:

- Whom to share knowledge with?
- What type of knowledge to share?
- How to share knowledge (means and actions)?
- What are the expected results?

Trying to answer these questions can help the project team determine the most effective actions and KM results most consistent with overall project objectives. Tailor a KM strategy to the project, considering the size, requirements, and the overall objectives. At the same time, consider beneficiaries, the government, the Adaptation Fund and other institutions related to the project, as well as the profile of the implementing team, the context, and available resources.

Actions identified for completing Step 2

1. Define KM and create a consensus about its use in the project
2. Set implementation goals and the scope of the KM strategy
3. Identify and profile target audience
4. Establish strategic alliances
5. Define monitoring and evaluation indicators (also see page 7 on this issue)
6. Establish the budget and identify source of financing
7. Identify human resources required and assign responsibilities
8. Develop an action plan
9. Develop a timeline for activities and products

[49] Some KM steps can be undertaken while developing the RBM framework.

Step 3: KM Strategy Implementation and Monitoring

Implementation and monitoring of the KM strategy should begin at the start of project implementation. Designing the strategy is complex, but its implementation even more so: many unexpected obstacles require quick adjustments and alternative solutions. For this reason, it's important to monitor and evaluate implementation periodically.

Results to be expected during the implementation of the KM strategy

- Knowledge demands are met in a timely and effective manner
- Local knowledge is enhanced and steps are taken to ensure sustainability
- Knowledge generated by project activities is collected and codified
- Project management receives useful information that helps monitor the project's progress

Actions identified for completing Step 3

1. Develop Internal KM activities on internal capacity building and change management
2. Undertake External KM activities to ease access to information, as well as dialogue between stakeholders.

Step 4: Evaluate, generate lessons learned, and disseminate

At project completion, the KM strategy and activities are evaluated along with the rest of the project. During this period, generate and disseminate lessons learned. Generating lessons learned should begin with selecting the important local development experiences that represent valuable lessons for other projects.

The legacy of KM should include the creation of knowledge products (lessons learned, data, and information on the processes) that are publicly accessible and widely disseminated, as well as increased capacity/knowledge among all stakeholders.

Actions identified for completing Step 4

1. Evaluate KM
2. Systemize and disseminate lessons learned

Core KM indicator for the Adaptation Fund

Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**Output 3:** Targeted population groups participating in adaptation risk reduction awareness activities
Indicator 3.1: Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	**Indicator 3.1:** No. and type of risk reduction actions or strategies introduced at local level
Indicator 3.3: Modification in targeted population behavior (survey)	**Indicator 3.2:** No. of news outlets in the local press and media that have covered the topic

REFERENCES

Adaptation Fund. 2010. An Approach to Implementing Results-Based Management – RBM. AFB/EFC.1/3/rev.1 June 16, 2010.

- Adaptation Learning Mechanism, UNDP, September 2009 - http://unfccc.int/files/adaptation/application/pdf/undp_ap_update_sep_09_ks_3_sp.pdf

- An approach to implementing Results Based Management – RBM, Adaptation Fund, AFB/EFC.1/3/Rev.1, June 2010

CARE. 2010. Community-Based Adaptation Toolkit. Digital Toolkit – Version 1.0 – July 2010. http://www.careclimatechange.org/files/toolkit/CARE_CBA_Toolkit.pdf

Danida's LFA handbook on: http://amg.um.dk/en/menu/TechnicalGuidelines/LogicalFramework Approach/LogicalFrameworkApproach.htm

Ebi, K.L., B. Lim and Y. Aguilar, 2005: Scoping and designing an adaptation process. Adaptation Policy Frameworks for Climate Change, B. Lim, E. Spanger-Siegfried, I. Burton, E.L. Malone and S. Huq, Eds., Cambridge University Press, New York, 33-46.

- Estrategia de Gestión del Conocimiento y Comunicación, RUTA, 2010

FAO. 2008. A guide book. Institutions for Disaster Risk Management Environment, Climate Change and Bioenergy Division, Food and Agriculture Organisation of the United Nations, Rome. Prepared By: Stephan Baas, Selvaraju Ramasamy, Jenny Dey DePryck, Federica Battista.

- Financing Adaptation Action, GEF, 2009

GEF Evaluation Office and Conservation Development Centre. 2009. Towards Enhancing the Impacts of Environmental Projects: The ROtI Handbook- August 2009-09-29

IADB. Online course on Logical Frameworks and M&E. (accessed in 2001)

IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.

IPCC. 2007. IPCC Fourth Assessment Report: Climate Change 2007. Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability. Glossary. (http://www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessannexes-glossary-e-o.html accessed October 2010)

Marengo, Jose A. 2010. Presentation: Baseline data for climate change impacts and vulnerability assessments, and adaptation planning. CCST/INPE, Sao Paulo Brazil. Co-chair IPCC TGICA. São Paulo, Brazil. UNFCCC Technical Workshop under the Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change Collaboration among Regional Centres and Networks 2-5 March 2010, Apia, Samoa.

Margoluis R. and N. Salafsky. 1998. Measures of Success: Designing, Managing, and Monitoring Conservation and Development Projects.

Mosse. R. and L.E. Sontheimer. 1996. Performance Monitoring Indicators Handbook. World Bank Technical Paper 334

NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

OECD. Development Co-operation Directorate. Development Assistance Committee Working Party on Aid Evaluation. 2000. Glossary of Evaluation and Results-Based Management (RBM) Terms.

OECD. 2001. Results-Based Management in the Development Co-Operation Agencies: A Review of Experiences Background Report. Written by Ms. Annette Binnendijk, consultant to the DAC WP-EV. http://www.oecd.org/dataoecd/17/1/1886527.pdf

- Operational policies and guidelines for parties to access resources from the Adaptation Fund, Adaptation Fund, 2010

Paardekooper, B. (2006), Ontwikkelingsorganisaties moeten grote publiek serieus nemen.
Vice Versa, 40-1 and Bodelier, R. & Vossen, M. (2007), David helpt Goliath. NRC Handelsblad, 5 May 2007 IN Meerts, A. 2009. Master's Thesis in the field of International Development Studies. The embeddedness of development interventions of Dutch private initiatives and their Indian partners. Faculty of Geo Sciences Utrecht University, the Netherlands.

ProVention Consortium 2007. Tools for Mainstreaming Disaster Risk Reduction: Collecting and Using Information on Natural Hazards. Guidance Note 2. (accessed on September – November 2010 http://www.proventionconsortium.org/themes/default/pdfs/tools_for_mainstreaming_GN2.pdf

- Results-Based Management Framework, Adaptation Fund, AFB/B.8/8, October 2009

Schulpen, Lau. 2007. Development in the 'Africa for beginners'. Dutch Private Initiatives in Ghana and Malawi. CIDIN, Radboud University Nijmegen.

UNDP. Monitoring and Evaluation Framework for Adaptation to Climate Change. Draft for Comments July 2007.

UNDP. 2007. Evaluation of Result-Based Management: Achieving Results.

UNFPA. Division for Oversight Services. 2004. Programme Manager's Planning Monitoring & Evaluation Toolkit. Tool Number 6: Programme Indicators. Part I: Identifying Output Indicators - The Basic Concepts.

Valencia, I.D. Lessons on M&E from GEF Climate Change Adaptation Projects. IN Van den Berg, R. D., and O. Feinstein (Eds.). 2009. Evaluating Climate Change and Development. World Bank Series on Development, Volume 8.

Vernooy, R. Monitoring and Evaluating Participatory Research and Development: Some Key Elements http://www.idrc.ca/ghri/ev-85056-201-1-DO_TOPIC.html (Accessed November 2010).

ANNEX 1: ADAPTATION FUND STANDARD/CORE INDICATORS

This annex describes the standard/core Adaptation Fund indicators that would be measured, and provides guidance as to how to define, measure, and collect data. The list of indicators is not definitive. [50] Choose only output and outcome indicators relevant to the nature of the project and then set targets.

Chapter 1: An introduction of the Adaptation Fund standard indicators

INDICATORS
1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis
1.1. No. and type of projects that conduct and update risk and vulnerability assessments
1.2 Development of early warning systems
2.1 No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks
2.2 Number of people with reduced risk to extreme weather events
2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events
2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased
2.2.1. Percentage of population covered by adequate risk reduction systems
2.2.2. No. of people affected by climate variability
3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses
3.2. Modification of behaviour in targeted population
3.1.1 No. and type of risk reduction actions or strategies introduced at local level
3.1.2 No. of news outlets in the local press and media that have covered the topic
4.1. Development sectors' services responsive to evolving needs from changing and variable climate
4.2. Physical infrastructure improved to withstand climate change and variability-induced stress
4.1.1. No. and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate variability and change (by type)
4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)
5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress
5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)
6.1 Percentage of households and communities having more secure (increased) access to livelihood assets
6.2. Percentage of targeted population with sustained climate-resilient livelihoods
6.1.1.No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community livelihood strategies
6.1.2. Type of income sources for households generated under climate change scenario
7. Climate change priorities are integrated into national development strategy
7.1. No., type, and sector of policies introduced or adjusted to address climate change risks
7.2. No. or targeted development strategies with incorporated climate change priorities enforced

[50] Other methods and ways to collect and analyze the data exist; therefore, the methods, examples, analysis, data collection techniques, and other information are included here solely to help project proponents and provide guidance; they are not intended to be prescriptive.

Chapter 2: Outline of Adaptation Fund Indicators

EXPECTED RESULTS	INDICATORS
Outcome 1: Reduced exposure at national level to climate-related hazards and threats	1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis
Output 1: Risk and vulnerability assessments conducted and updated at a national level	1.1. No. and type of projects that conduct and update risk and vulnerability assessments
	1.2. Development of early warning systems

1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis

Definitions

Indicator	Existence of "relevant threat and hazard information" is a measure of how research activities, as well as scientific information and knowledge generated by studies (projects, etc.), feed back into improved adaptation responses. Stakeholders provide and access information, and use as needed.
Terms	"Relevant:" the threat and hazard information to the sector, or aspect being addressed (see below). "Threats or risks:" the probability of climate change (including variability) negatively impacting a country, community, or household as the result of the interaction between a hazard and conditions of vulnerability (AF). "Hazard:" the probability of a climate-related incident to occur within a given area and timeframe (AF). A climate hazard is a physically defined climate event with the potential to cause harm, such as heavy rainfall, drought, storm, or long-term change in climatic variables such as temperature and precipitation (APF 2005). A hazard may be a transient, recurrent event with an identifiable onset and termination such as a storm, flood, or drought, or a more permanent change such as a trend or transition from one climatic state to another. "Hazards" may be characterized in terms of climatic variables, while "coping range" reflects the same variables for the various systems on which human populations depend. "Sectors:" Water Resources Management; Agriculture; Land Management; Food Security; Health; Coastal Zone Management; Infrastructure Development; Disaster Risk Reduction; Fragile Ecosystems; Natural Resources Management; Urban Development; Multi-sectoral; Other. "Timely basis:" in time to allow an effective response. It should answer questions as: before and after and for what hazard (e.g., irrigation before drought or insurance after hail) (Webbe et al IN Leary et al. 2008).
Difficulty of measuring the	Moderate

1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	
indicator	
How to measure it (metrics)	Measure three parameters in this indicator: 1. Generation of relevant data (See also Output indicator 1.1) 2. Stakeholders (See also Output indicator 1.2) 3. Timeliness (See also Output indicator 1.2) Summarize overall analysis using the following scale (1-3): 3. All relevant data are generated and disseminated to all stakeholders on a timely basis. 2. Partial relevant data are generated and disseminated to some stakeholders on a somewhat timely basis (and all variations of partial aspects). 1. No relevant data are generated or disseminated to stakeholders on a timely basis. Briefly describe main opportunities and/or challenges encountered with respect to generating data, disseminating information to stakeholders, and timeframe of dissemination.
Why measure it	For adaptation measures to be effective and useful, stakeholders must generate, share, and consider specific knowledge on the complex nature, extent, and persistence of threats and hazards. Ask these questions: 1. Is relevant threat and hazard information generated and disseminated to stakeholders on a timely basis? 2. What aspects of relevant information are being addressed (or not)? 3. To which stakeholders is the information being disseminated? 4. What are the time-related dissemination challenges and opportunities?
When to measure it	• Projects up to three years in length: measure for baseline information and end of project. • Projects longer than 3 years: as above, but also at mid-term review. • Follow-up evaluation recommended for understanding long-term results.
How to collect the data	Compile and analyze secondary data on threats and hazards in the area of intervention (see below). Collect data from various sources, including direct interviews with institutions or groups managing threats and hazards information. Proponents may also base assessment on studies and analysis undertaken by these institutions

and specialists, etc.

A proposal must do *at least one* of the following to demonstrate the existence of a threat from climate change to a system targeted by project activities:

1. Assess the current viable climatic range (i.e. the coping range) of the system to be targeted by project activities, in terms of key climatic parameters.

2. Provide evidence that climate change will likely exceed the current coping range under which the system or practice is viable (e.g. information indicating a reasonable likelihood that key climatic parameters will exceed the coping range in question more frequently, or permanently, based on climate model outputs; recent climatic trends or past analogues).

3. Describe, through a baseline scenario, the likely consequences of exceeding the coping range in question, assuming no adaptation interventions. Assess the development benefits of an adaptation project in relation to this baseline.

Proposals must also provide information on the following key features of natural hazards to identify past, present, and potential hazards and their effects:

- *Location and extent*. Is the programme or project area affected by one or more natural hazards? What types of hazard, and where?

- *Frequency and probability of occurrence*. How often are hazard events likely to occur (in both the short- and the long-term)?

- *Intensity/severity*. How severe are the events likely to be (e.g., flood levels; speed of winds and volume/rate of rainfall during hurricanes; magnitude and intensity of an earthquake)?

- *Duration*. How long will the hazard event last (from a few seconds or minutes in the case of an earthquake to months or even years in the case of drought)?

- *Predictability*. How reliably can we predict when and where events will happen?

Note: Information about the speed of onset of a hazard event relates principally to disaster preparedness and early warning systems, but may also influence decisions (e.g., planning secure evacuation routes).

Project planners and evaluators should also be aware of the following:

- Secondary hazards resulting from a hazard event (e.g., landslides triggered by an earthquake or heavy rainfall; fires in buildings set off by earthquakes; dam failure due to floodwaters);

1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis

- Hazards outside the project area that could affect it (e.g., by cutting off supplies of power or raw materials, displacing communities); and

- How hazard events occur, including not only natural physical processes but also the impact of human activities that create or exacerbate hazards (e.g., deforestation causing slope instability and hence landslides).

Describe uncertainties associated with each risk factor.

What is required to collect the data

- Assessment tools: to assess relevance of threat and hazards information, to whom the information would/should be disseminated, and definition of "timely basis"
- Survey to understand perception of stakeholders on relevance of data and timeframe
- Secondary information (data on existing hazards information, etc.)
- Project document and reports

How to analyze and interpret the results

"3" means "relevant information is generated and disseminated to all identified stakeholders on timely basis."

"2" means "the existence of some challenge in any of the three aspects of the indicator (generation of dissemination, stakeholders reached or timeframe managed)."

"1" means "generated information is irrelevant, and neither the stakeholders reached nor the timeframe managed were achieved."

Briefly describe the challenges and/or opportunities supporting any of the three potential responses above.

Strength and limitations of indicator

The indicator by itself does not say whether relevant information generated and disseminated on a timely basis has, or would be, applied to generate effective adaptation measures. Therefore, use a related indicator: relevant risk and hazard information is being sustainably generated and effectively used by stakeholders.

Outputs of measuring activities

Narrative report including sector(s) addressed, population/stakeholder covered and timeframe.

1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis

Example

Overall, the project intervention has generated partial relevant data (hazard: drought), which was disseminated to 500 stakeholders (farmers from the country's southern region) on a timely basis (all three episodes during project implementation).

	Sector addressed	Number of targeted stakeholders	Hazards information generated	Timeframe	Overall effectiveness
Baseline	Agriculture	1,000 (x men/boys, x women/girls, x elderly and x disabled)	None	Before and after event	1 (describe)
Target	Agriculture	1,000 (x men/boys, x women/girls, x elderly and x disabled)	Drought and hail	Before and after event	3 (describe)
Actual result	Agriculture	500 (male/female ratio)	Drought	Before event	2 (describe)

References, resources and tools

- Adaptation Fund. 2010. An Approach to Implementing Results-Based Management – RBM. AFB/EFC.1/3/rev.1 June 16, 2010.
- Caribbean Hazard Mitigation Capacity Building Programme (CHAMP) http://www.cdera.org/projects/champ/mitiplcy/vulnerb.shtml (Accessed September – November 2010).
- DFID Climate Risk Impacts on Sectors and Programmes (CRISP) at http://tinyurl.com/ccorchid (Accessed September - November 2010).
- Fay, M., R.I. Block, and J. Ebinger (Eds). 2010. Adapting to Climate Change in Eastern Europe and Central Asia. The World Bank. 180pp.
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?
- ProVention Consortium 2007. Tools for Mainstreaming Disaster Risk Reduction: Collecting and Using Information on Natural Hazards. Guidance Note 2. (Accessed on September – November 2010) http://www.proventionconsortium.org/themes/default/pdfs/tools_for_mainstreaming_GN2.pdf
- ProVention Consortium Community Risk Assessment Toolkit. http://www.proventionconsortium.org/?pageid=39 (Accessed on September – November 2010).

1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis

- UNISDR. Developing Early Warning Systems: A Checklist. 2006. EWC III. Third International Conference on Early Warning. From concept to action. 27-29 March 2006. Bonn, Germany http://www.unisdr.org/ppew/info-resources/ewc3/checklist/English.pdf (Accessed September – November 2010).

- UNDP Adaptation to Climate Change Web Page: http://www.undp.org/climatechange/adapt/definitions.html (Accessed September – November 2010).

- Webbe, M., H. Eakin, R. Seiler, M. Vinocur, C. Avila, C. Maurutto and G. Sanchez Torres. Local Perspectives on Adaptation to Climate Change: Lessons from Mexico and Argentina IN Leary, N., J. Adejuwon, V. Barros, I. Burton, J. Kulkarni, and R. Lasco (Eds.). 2008. Climate Change Adaptation. Earthscan. UK. 381pp.

- Yalowitz, K., J.F. Collins, and R. A. Virginia. 2008. The Arctic Climate Change and Security Policy Conference. Final Report and Findings. Dartmouth College, Hanover, New Hampshire. USA. http://www.carnegieendowment.org/files/arctic_climate_change.pdf (Accessed September – November 2010).

Where possible, definitions have been quoted word for word from the source.

1.1. Number and type (sector) of projects/interventions that conduct and update risk and vulnerability assessments

Definitions

Indicator

Development and update of risk and vulnerability assessments is a measure of quantity and type of research activities, scientific information, and knowledge generated in the area of intervention. This indicator assumes higher numbers of projects and interventions within different sectors conducting and updating risk and vulnerability assessments would provide increasingly more information on specific risk and vulnerability assessments. This information would form the basis to develop relevant and sector-specific adaptation measures and to help a country/sector make risk-based choices to address vulnerabilities, mitigate hazards, and prepare for response to, and recovery from, hazard events. It is mainly a measure of the availability of information.

Terms

"Risk": the probability of climate change (including variability) negatively impacting a country, community, or household as the result of the interaction between a hazard and conditions of vulnerability (AF).

"Vulnerability:" The degree to which a system is susceptible to, and unable to cope

1.1. Number and type (sector) of projects/interventions that conduct and update risk and vulnerability assessments

	with, the adverse affects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity (IPCC). (Vulnerability is a function of a country's or community's exposure to climate-related hazards, and the capacity to mitigate and cope with the impact of the hazards). "Sector:" Water Resources Management; Agriculture; Land Management; Food Security; Health; Coastal Zone Management; Infrastructure Development; Disaster Risk Reduction; Fragile Ecosystems; Natural Resources Management; Urban Development; Multi-sectoral, other. Define: number of projects (if referring to a programme or number of interventions); components/outputs/activities (if referring to a project). Define: level or geographic scale of intervention (national, regional, local).
Difficulty of measuring the indicator	Low
How to measure it	Number, sector(s) and level(s) of projects or interventions in separate fields of monitoring plan
Why measure it	For adaptation measures to be effective and useful, stakeholders must generate, share, and consider specific knowledge on the complex nature, extent, and persistence of threats and hazards.
When to measure it	• Projects up to three years in length: measure for baseline information and end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	Compile and analyze secondary data on threats and hazards on projects previously completed or currently implementing risk and vulnerability assessments in the area of intervention (baseline). Collect data from various sources, including direct interviews with institutions or groups managing threats and hazards information.
What is required to Collect the data	Project reports and publications
How to analyze and interpret the results	Create a Table (See Example below).

1.1. Number and type (sector) of projects/interventions that conduct and update risk and vulnerability assessments

Strength and limitations of indicator

This indicator cannot measure quality of generated or updated risk and vulnerability assessments. To do that, include other indicators.

Outputs of measuring activities

Table (See Example below).

Example

	Number of interventions	Sector	Scale	Intervention
Baseline	1	Agriculture	Local (community X)	Risk assessment
	None	Coastal Zone Mgmt.	National	None
Target (and actual result)	2	Agriculture	Local (community X)	Updated risk assessment
	1	Coastal Zone Mgmt.	National	Vulnerability assessment

References, resources and tools

- Adaptation Fund. 2010. An Approach to Implementing Results-Based Management – RBM. AFB/EFC.1/3/rev.1 June 16, 2010.
- Caribbean Hazard Mitigation Capacity Building Programme (CHAMP) http://www.cdera.org/projects/champ/mitiplcy/vulnerb.shtml (Accessed September – November 2010).
- CRISTAL: Community-based Risk Screening Tool – Adaptation and Livelihoods http://www.cristaltool.org/ (Accessed November 2010).
- DFID Climate Risk Impacts on Sectors and Programmes (CRISP) at http://tinyurl.com/ccorchid
- Knight, C.G. and J. Jager (Eds.). 2009. Integrated Regional Assessment of Global Climate Change. Cambridge University Press. 412pp.
- NOAA. Vulnerability assessment techniques and Applications (VATA). http://www.csc.noaa.gov/vata/ (Accessed on September – November 2010).
- NOAA. Community Vulnerability Assessment Tool. http://www.csc.noaa.gov/products/nchaz/startup.htm (Accessed on September – November 2010).
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your

1.1. Number and type (sector) of projects/interventions that conduct and update risk and vulnerability assessments

MPA doing?

- Patt, Anthony G.; Schröter, Dagmar; Klein, Richard J. T.; de la Vega-Leinert, Anne Cristina. 2008. Assessing vulnerability to global environmental change: making research useful for adaptation decision making and policy. International Institute for Applied Systems Analysis (IIASA). Earthscan. ISBN/ISSN: 9781844076970; 304pp.

- ProVention Consortium Community Risk Assessment Toolkit. http://www.proventionconsortium.org/?pageid=39 (Accessed on September – November 2010). Also:
  - http://www.proventionconsortium.org/themes/default/pdfs/CRA/SPDRP1998_meth.pdf
  - http://www.proventionconsortium.org/themes/default/pdfs/CRA/BC_HRVA_2003_meth.pdf

- UNDP Adaptation to Climate Change Web Page: http://www.undp.org/climatechange/adapt/definitions.html (Accessed September – November 2010).

- UNISDR. Developing Early Warning Systems: A Checklist. 2006. EWC III. Third International Conference on Early Warning. From concept to action. 27-29 March 2006. Bonn, Germany http://www.unisdr.org/ppew/info-resources/ewc3/checklist/English.pdf (Accessed September – November 2010).
  - UNISDR: http://www.unisdr.org/eng/partner-netw/ngos/rd-ngo-eng.htm (Accessed November 2010).

Where possible, definitions have been quoted word for word from the source.

1.2 Development of early warning systems

Definitions

Indicator Development of early warning systems is a measure of long-term knowledge generated and disseminated in the area of intervention. This indicator assumes higher numbers of early warning systems would provide increasingly more information on specific risk and vulnerability assessments. This information would form the basis to develop relevant and sector-specific adaptation measures and to help a country/sector make risk-based choices to address vulnerabilities, mitigate hazards, and prepare for response to, and recovery from, hazard events. It mainly measures the availability of information during the timeframe needed.

1.2 Development of early warning systems

Terms	"Early warning system(s) or EWS:" "A system is a set of interacting component parts that acts as a whole to produce an outcome. Systems thinking and methods have been very influential in improving the design and operation of many elements of modern society. Early warning systems can be likewise examined and improved from this perspective" (UNISDR). "The first step forward calls for the definition of the early warning system – of its desired outcomes, component parts, internal relationships, inputs and outputs – along with measures of its performance, preferably in relation to appropriate benchmarks or norms. The four-element (risk knowledge, monitoring and warning service, dissemination and communication, response capability) framework provides a good basis for examining and defining early warning systems" (UNISDR). Define geographic scale and risk covered by EWS(s).
Difficulty of measuring the indicator	Low
How to measure it	Number
Why measure it	Development of early warning systems is an integral aspect of the outcome: • Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis. • "Early warning is a major element of disaster risk reduction. It prevents loss of life and reduces the economic and material impact of disasters" (UNISDR 2006).
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	Through secondary data with information on early warning system information or primary data (interviews)
What is required to collect the data	• Secondary data with information on existing early warning system information or primary data (interviews) • Project/programme reports
How to analyze and interpret the results	A table or narrative including number of EWS developed, geographic scale covered by EWS (and sector if applicable). Further information in narrative format.

1.2 Development of early warning systems

Strength and limitations of indicator	This indicator does not provide information on effectiveness or operational capacity of EWS.
Outputs of measuring activities	Narrative report, which can include number of EWS established and other specific information
Example from the field	An Early Warning System (EWS) will be developed integrating meteorological forecasts for the upper X basin (with information generated by the strengthened meteorological network). It will be based on a suite of defined benchmarks, and will account for both water scarcity and excess. It will also be used as a complementary safeguarding tool for the operations of existing and planned dams. In addition, the EWS would help define the appropriate rationing benchmark in times of water stress. All the actions will be developed through a robust community-based approach and technologies that facilitate replication such as low-cost water storage, stabilized landslide areas, more efficient water use, low-tech community early warning systems (EWS), and rainfall management schemes. **Indicator:** Number of EWS for floods and landslides operational **Baseline:** No EWS for flood and landslide are operational at present **Target end of project:** 4 EWS established that benefit a total estimated population of 13,000 in the most vulnerable areas of City X and the upper X basin by year 3
References, resources, and tools	- International Strategy for Disaster Reduction. Platform for the Promotion of Early Warning. Ideas for Innovation. http://www.unisdr.org/ppew/ideas-innovation/ideas-innovation.htm (Accessed September- November 2010). - Honduras and UNDP. Addressing Climate Change Risks on Water Resources in Honduras: Increased Systematic Resilience and Reduced Vulnerability of the Urban Poor. Project Proposal 2010. http://www.adaptation-fund.org/projectprogrammeproposals (Accessed September- November 2010). - http://www.climatehotmap.org/ (Accessed September – November 2010). - NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing? - UNISDR. Developing Early Warning Systems: A Checklist. 2006. EWC III. Third International Conference on Early Warning. From concept to action. 27-29 March 2006. Bonn, Germany http://www.unisdr.org/ppew/info-resources/ewc3/checklist/English.pdf (Accessed September – November 2010) Where possible, definitions have been quoted word for word from the source.

EXPECTED RESULTS	INDICATORS
Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks
	2.2. Number of people with reduced risk to extreme weather events
Output 2.1: Strengthened capacity of national and regional centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts, of climate-related events
	2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased
Output 2.2: Targeted population groups covered by adequate risk reduction systems	2.2.1. Percentage of population covered by adequate risk reduction systems
	2.2.2. No. of people affected by climate variability

2.1. Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risks

Definitions

Indicator Number of targeted institutions with increased capacity to minimize exposure to climate variability risks is a measure of capacity developed to provide adaptation measures and reduce vulnerability.

Terms "Targeted institutions," including scale (local, regional, national); type (public/government institutions, NGOs, private sector, etc.), and sector (health, education, financial, etc.).

"Climate variability risks:" Risk is the probability of climate change (including variability) negatively impacting a country, community, or household as the result of the interaction between a hazard and conditions of vulnerability (AF).

"Institutional capacity building:" a process, relying on a series of institutional capacity building or skills transfer initiatives, leading to financial, managerial, and technical sustainability, that ensures more effective:

- Resource management (financial, human, technical, community)
- Service delivery
- Staff competencies at all levels
- Planning (including individual or short-term, annual, strategic, and sustainability)
- Implementation of appropriate, efficient, and cost-effective management systems

Review theoretical framework by Gupta et al. 2008 to understand increasing capacity analysis. This framework consists of six dimensions:

2.1. Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risks

	• Three central qualities of adaptive institutions (variety, learning capacity, and room for autonomous change) • Three external qualities that influence and contribute to these qualities (leadership, resources, and fair governance) (Termeer et al. 2009)
Difficulty of measuring the indicator	Moderate
How to measure it	Baseline and target information should include both qualitative and quantitative measures of capacity level within targeted institutions.
Quantitative	Identify number of targeted institutions. Measure, for example, a decrease in the number of days needed to complete the approval of a climate change resilient water pipeline; this could indicate improved responsiveness of institutions to the needs of targeted populations.
Qualitative	In-depth studies could assess any changes to responsiveness, awareness, and participation of institutions with respect to the needs posed by climate change. Where relevant, focus groups (women, youth, ethnic minorities, and entrepreneurs) could help assess changes in perception of institutions or policies (IFAD 2007).
Why measure it	Minimizing climate-variability risks in a specific area or an entire country requires the existence of vectors of change or entities that implement adaptation measures. This indicator assumes that higher numbers of these institutions with increased capacity increases the probability of covering the entire area and sectors of intervention. This indicator identifies whether enough institutions from different levels and sectors are supporting the reduction of risks.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term. • Follow-up evaluation recommended for understanding long-term results.
How to collect the data	Compile and analyze secondary data on threats and hazards on projects previously completed or currently implementing risk and vulnerability assessments in the area of intervention (baseline). Collect data from various sources, including direct interviews with institutions or groups managing threats and hazards information.
What is required to collect the data	• Secondary data with information on institutions that work on minimizing risks from climate variability in the area of intervention (e.g., reports on mission, vision, strategy of institution, etc.)

2.1. Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risks

- Questionnaire for direct interviews with relevant institutions should include questions directed towards understanding the following aspects:
  - Resource management (financial, human, technical, community);
  - Service delivery;
  - Staff competencies at all levels;
  - Planning (including individual or short-term, annual, strategic, and sustainability); and
  - Implementation of appropriate, efficient, and cost-effective management systems. See also reference below on adaptive capacity scorecard.
- Interviewer.

How to analyze and interpret the results

Higher numbers of institutions with increased capacity to minimize risks indicates higher capacity in the area of intervention to minimize risks. Further description of quality of increased capacity would depend on type of assessment used. Compare with previous and post-project interventions.

Strength and limitations of indicator

There is a need for good understanding of the existing capacity and gaps to bridge in targeted institutions.

Outputs of measuring activities

Table including number and type of institution (including sector and coverage) and narrative including perception of level of capacity increased per targeted institution.

Example from the field

Outcome 4: Continuous monitoring capabilities of coastal stabilization trends established.

Indicator 4.1: Coastal Research Institute (CoRI) has capacity to undertake systematic coastal observation.

Baseline: There are scattered tidal gauge stations along the Mediterranean Sea in Egypt belonging to several institutions, but no national network for regular monitoring of Sea Level Rise and other physical oceanographic variables.

Targets:

- By end of the project, quality control and assurance procedures designed and approved for SLR monitoring at the Coastal Research Institute of the Ministry of Water and Irrigation

- By end of 2010, at least 3 training sessions on quality control and assurance designed and delivered
- By end of 2012, at least 40 staff of CoRI and other national and local institutions trained in coastal monitoring quality system

Means of verification:

2.1. Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risks

- Project annual reports
- Model outputs
- Technical reports
- Project mid term evaluation
- Project final evaluation

Output 4.1: Continuous monitoring program for warning system against sea level rise and climatic change impacts on the sea parameters such as wave height and direction, tide, erosion, storm surges etc. established and relevant software purchased and installed

Indicator 4.1.1: Climate and sea-level monitoring programme infrastructure established and upgraded with additional software

Output 4.2: Quality control and assurance procedures defined

Indicator 4.2.1: Guidelines for quality control and assurance procedures defined

Output 4.3: Training designed and delivered for coastal monitoring and quality control system

Indicator 4.3.1: Number of training sessions on coastal monitoring and quality control system designed and delivered

Indicator: 4.3.2: Number of staff of CoRI and other national and local institutions trained in coastal monitoring quality system

References, resources, and tools

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- Joyeeta Gupta, Katrien Termeer, Judith Klostermann, Sander Meijerink, Margo van den Brink, Pieter Jong and Sibout Nooteboom (doc and poster: IC12 Institutions for Adaptation: Are Dutch Institutions Capable of Adapting to Climate Change?
- Joyeeta Gupta, Katrien Termeer, Judith Klostermann, Sander Meijerink, Margo van den Brink, Pieter Jong, Sibout Nooteboom, Robbert Biesbroek and Emmy Bergsma (2009) Adaptive capacity scorecard.
- http://www.adaptation-fund.org/system/files/Egypt_8_11_10.pdf
- http://www.pathfind.org/site/PageServer?pagename=Pubs_ICB
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

2.1. Number and type of targeted institutions with increased capacity to minimize exposure to climate variability risks

- Strengthening your organization: A Series of Modules and Reference Materials for NGO and CBO Managers and Policy Makers. Pathfinder International. Accessed September – November 2010 http://www.pathfind.org/site/DocServer/complete_intro.pdf?docID=322

Where possible, definitions have been quoted word for word from the source.

2.1.1. Number of staff trained to respond to, and mitigate impacts of, climate-related events

Definitions	
Indicator	The number of staff (males and females[51]) from targeted institutions that participated in training events held during the period defined.
Terms	"Staff:" personnel from targeted institutions to whom the training is provided/directed. "Targeted institutions:" sector (see definition of sectors above), type (private, public, NGO) and geographic coverage (national, regional, or local) by institutions.
Difficulty of measuring the indicator	Low
How to measure it	Number of staff (male/female) of targeted institutions: • Obtain baseline information: total number of staff from targeted institutions • Define target
Why measure it	Empowered staff from targeted institutions have greater awareness about the need to respond to, and mitigate impacts of, climate change effectively. Staff needs the knowledge, skills, and attitudes to carry out new tasks and confront new challenges. Capacity building includes technical, managerial, and behavioural aspects.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	For numbers (baseline and target): Use of human resource information and data from targeted institutions and implementation plan of training programme.

[51] Women/girls (age bracket as defined by country or internationally – specify); Men/boys (age bracket as defined by country or internationally – specify), youth (age bracket as defined by country or internationally – specify), vulnerable groups as defined by country or internationally (specify).

2.1.1. Number of staff trained to respond to, and mitigate impacts of, climate-related events

What is required to collect the data	Access to training records and list of participants
How to analyze and interpret the results	Number of total staff trained from institution, which could also be broken down by gender
Strength and limitations of indicator	Number of trained staff alone does not equate to effective application of knowledge and skills learned. Therefore, a survey to collect further information, mainly changes in behaviour of trainees, would be required to understand quality of training and application of information learned.
Outputs of measuring activities	Narrative report including a table with numbers of trained personnel (broken down by females and males)

Example

	Number of staff trained	Total number of staff in targeted institution	Type of Institution	Institution's sector	Other information E.g., training theme, geographic scale.
Baseline	0	400 (include male/female ratios)	Government	Health	
Target (end of project)	100 (at least 50% females)	400 (include male/female ratios)	Government	Health	
Actual result (end of project)	150 (60% females and 40% males)	350 (include male/female ratios)	Government	Health	

2.1.1. Number of staff trained to respond to, and mitigate impacts of, climate-related events

References, references, and tools

- Aguilar, L. 2009. Training Manual on Gender and Climate Change. IUCN, UNDP, GGCA. http://www.generoyambiente.org/archivos-de-usuario/File/ecosistemas_especificos.pdf

- J. van Geene, C.T.H.M. Terwisscha van Scheltinga, F. Gordijn, A.M.J. Jaspers and M. Argaw 1991. Trainer's Manual on Climate Change Adaptation and Development. Integrating Climate Change in Policy Making for Sustainable Development in Agriculture and Natural Resources Management. http://portals.wi.wur.nl/files/docs/file/climate%20change/TrainingManual2009report%201991-fin.pdf

- http://www.unitar.org/ccp/ (Accessed September – November 2010).

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- WeAdapt. Collaborating on Climate Change. http://www.weadapt.org/ (Accessed September – November 2010).

- WHO. Climate Change and Human Health. Training. http://www.who.int/globalchange/training/en/ (Accessed September – November 2010).

Where possible, definitions have been quoted word for word from the source.

2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased

Definitions	
Indicator	The number of staff (males and females[52]) from targeted institutions that participated in training events held during the period defined.
Terms	"Staff:" personnel from targeted institutions to whom the training is provided/directed "Targeted institutions:" sector (see definition of sectors above), type (private, public, NGO) and geographic coverage (national, regional or local) by institutions
Difficulty of measuring the indicator:	Low
How to measure it	Number of staff (male/female) of targeted institutions: • Obtain baseline information: total number of staff from targeted institutions • Define target: needs to be defined by project proponents
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data (baseline and target)	Use human resource information and data from targeted institutions and implementation plan of training programme.
Qualitative	Use survey or questionnaire to measure effectiveness with questions such as the following: • Does staff understand the potential contribution of its own work to climate change response? • After the training, would staff be better equipped with knowledge, attitudes, and skills to respond effectively to climate change impacts?

[52] Women/girls (age bracket as defined by country or internationally - specify); Men/boys (age bracket as defined by country or internationally –specify), youth (age bracket as defined by country or internationally –specify), vulnerable groups as defined by country or internationally (specify).

2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	
What is required to collect the data	• Interviewer to evaluate satisfaction/perception/quality of training as well as level of attendance, etc. • Questionnaire for interviews • Training manuals and other materials to assess quality of training • Training records and list of participants
How to analyze and interpret the results	Number of total staff trained (use previous indicator) and quality of training from targeted institution(s), which could also be broken down by gender Other relevant indicators: • Level of application of information learned by trained staff
Strength and limitations of indicator	Quality of training does not measure level of application by trained staff of topics; an expert should apply and interpret a perception/quality survey.
Outputs of measuring activities	Narrative report explaining effectiveness of training sessions with the help of tables (broken down by gender) and numbers of staff trained

2.1.2. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased

Example

	Number of staff trained	Total number of staff in targeted institution	Type of Institution/sector	Summarize: perceived quality/analysis of training materials
Baseline	0	400 (male/female ratios)	Government/health	1 (describe, explain)
Target (end of project)	100 (at least 50% females)	400 (male/female ratios)	Government/health	4 (describe, explain)
Actual result (end of project)	150 (60% females and 40% males)	350 (male/female ratios)	Government/health	4 (describe, explain)

References, resources, and tools

- Aguilar, L. 2009. Training Manual on Gender and Climate Change. IUCN, UNDP, GGCA. http://www.generoyambiente.org/archivos-de-usuario/File/ecosistemas_especificos.pdf

- J. van Geene, C.T.H.M. Terwisscha van Scheltinga, F. Gordijn, A.M.J. Jaspers and M. Argaw 1991. Trainer's Manual on Climate Change Adaptation and Development. Integrating Climate Change in Policy Making for Sustainable Development in Agriculture and Natural Resources Management. http://portals.wi.wur.nl/files/docs/file/climate%20change/TrainingManual2009report%201991-fin.pdf

- http://www.unitar.org/ccp/ (Accessed September – November 2010).

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- WeAdapt. Collaborating on Climate Change. http://www.weadapt.org/ (Accessed September – November 2010).

- WHO. Climate Change and Human Health. Training. http://www.who.int/globalchange/training/en/ (Accessed September – November 2010).

Where possible, definitions have been quoted word for word from the source.

2.2. Number of people with reduced risks to extreme weather events

Definitions

Indicator Number of people with reduced risks to extreme weather events is a measure of capacity of institutions and people in general to respond to risks associated with climate variability in a targeted area. As institutions gain capacity, they become more effective at developing appropriate interventions.

Terms "Extreme weather event:" An event that is statistically rare at a particular place. Definitions of "rare" vary, but an extreme weather event would normally be as rare as, or rarer than, the 10th or 90th percentile. By definition, the characteristics of what is called "extreme weather" may vary from place to place. Extreme weather events may typically include floods and droughts (IPCC).

"Losses from extreme weather events" loss of life, permanent disruption of long-established lifestyles, and setbacks to development processes.

Human communities clearly are vulnerable to climate change, especially societies that depend heavily on natural resources such as forests, agriculture, and fishing; low-lying regions subject to flooding; water-scarce areas in the subtropics; and communities subject to extreme events such as heat episodes and droughts.

Define specific potential losses for the project area or programmes (specifically those that will be included to understand indicators):

- Morbidity: Rate of occurrence of disease or other health disorders within a population, taking account of the age-specific morbidity rates. Morbidity indicators include chronic disease incidence/prevalence, rates of hospitalization, primary care consultations, disability-days (i.e., days of absence from work), and prevalence of symptoms. (IPCC).

- Mortality: Rate of occurrence of death within a population; calculation of mortality takes account of age-specific death rates, and can thus yield measures of life expectancy and the extent of premature death (IPCC).

- Under nutrition: The temporary or chronic state resulting from intake of lower than recommended daily dietary energy and/or protein requirements, through either insufficient food intake, poor absorption, and/or poor biological use of nutrients consumed (IPCC).

- Welfare: An economic term used to describe the state of well-being of humans on an individual or collective basis. The constituents of well-being are commonly considered to include materials to satisfy basic needs, freedom and choice, health, good social relations, and security (IPCC).

- Socioeconomic scenarios: Scenarios concerning future conditions in terms of population, Gross Domestic Product, and other socioeconomic factors relevant to understanding the implications of climate change. See SRES (source: Chapter 6), IPCC.

2.2. Number of people with reduced risks to extreme weather events

	• Analysis of effects on socioeconomic aspects: including social, human, physical, natural capitals, and livelihoods. Guidelines for the analysis of current and projected socioeconomic conditions are part of the UNDP Adaptation Policy Framework (Malone and La Rovere, 2005). They advocate the use of five categories of indicators to characterize socioeconomic conditions and prospects: demographic, economic, natural resource use, governance and policy, and cultural. Most recent studies have focused on the first two of these five. Important impacts that may be associated with key vulnerabilities are found in many social, economic, biological, and geophysical systems. The literature has provided various tabulations of risks, impacts, and vulnerabilities (e.g., Smith et al., 2001; Corfee-Morlot and Höhne, 2003; Hare, 2003; Oppenheimer and Petsonk, 2003, 2005; ECF, 2004; Hitz and Smith, 2004; Leemans and Eickhout, 2004; Schelinhuber et al., 2006). Key vulnerabilities are associated with many climate sensitive systems, including, for example, food supply, infrastructure, health, water resources, coastal systems, ecosystems, global biogeochemical cycles, ice sheets, and modes of oceanic and atmospheric circulation (see Section 19.3). (IPCC) 19.3.2.5 Societal systems (same document) (IPCC).
Difficulty of measuring the indicator	Moderate to high
How to measure it	Number (men and women and other vulnerable groups[53])
Why measure it	Decreased number of people suffering losses produced by extreme weather events is a measure of increased capacity in institutions (at defined level) in implementing or guiding adaptation measures.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term. • Follow-up evaluation recommended for understanding long-term results.
How to collect the data	Collect baseline data through census, surveys, and/or other appropriate means; define specific targets considering the baseline data.
What is	• Census provider and tools for analysis

[53] Vulnerable groups: indigenous groups, women, youth (including children) and the elderly, physically impaired, etc. Specific vulnerable groups should be identified, and their perspective included, during project design.

2.2. Number of people with reduced risks to extreme weather events

required to collect the data	• Systems to maintain data • Surveys
How to analyze and interpret the results	Interpretation is based on results of census and estimates. Total numbers of people suffering losses in the intervention area is compared with total numbers of people suffering losses in the region, or the same intervention area from past events, etc. Depending on extent of census: age, class structure and/or gender across populations within the intervention area.
Strength and limitations of indicator	The link between decreased number of people suffering losses and strengthened capacity of formal and informal institutions needs careful consideration of context and scenario information on intervention area.
Outputs of measuring activities	Table presenting numbers and category of losses Narrative report accompanying table on quality of losses
Example from the field	Honduras: Context includes information on: • General vulnerability analysis to extreme events of country (including review of causes to vulnerability) • Financial losses due to disasters (historically) • Specific natural disaster information (hurricanes), rainfall, flash floods, landslides, intense droughts • Socioeconomic analysis: description of mortality, infrastructure loss, decreases of water supply and crop losses caused by disasters • General future scenarios • Analysis of adaptation capacity **Project Objective:** To increase resilience to climate-change risks in the most vulnerable communities in Tegucigalpa and environs within an overarching intervention that will mainstream climate-change considerations into the water sector. **Indicator 1:** Increase in allocation of public budget to address climate-related risks of the most vulnerable population in Honduras. **Baseline**: A population of 6,000,000 is highly vulnerable to climate change and no provisions have been made in planning to reduce this vulnerability. Public investment has been limited to specific disaster risk reduction. **Target:** At least 10% of the national budget is allocated to investments and actions to reduce climate risk of the most vulnerable populations in Honduras by Y5; national and sub-national plans. **Means of verification:** Project evaluations: semi-annual and annual reports; midterm

2.2. Number of people with reduced risks to extreme weather events

and terminal evaluations.

Indicator 2: Number of poor households in Tegucigalpa and the upper Choluteca basin experience reduced risk from floods and landslides (projected to increase under climate change scenarios).

Baseline: 132,500 poor households in high landslide risk areas.

Target: At least 13,000 poor households in Tegucigalpa and the upper Choluteca basin report reduced vulnerability to flooding and landslide risks by Y5.

Means of verification: Surveys, project evaluations: semi-annual and annual reports; midterm and Terminal evaluation.

Indicator 3: Number of poor households in Tegucigalpa and the upper Choluteca basin that have increased access to water all year, thus reducing current vulnerability and increasing their coping range under climate change scenarios.

Baseline: An estimated 100,000 poor households currently suffer water scarcity.

Target: At least 10,000 of poor households in Tegucigalpa and the upper Choluteca basin double their access to water through pilot activities (e.g., water pricing and construction of water storage facilities) by Y5.

Means of verification: Surveys, project evaluations: semi-annual and annual reports; midterm and terminal evaluations.

References, resources, and tools

- Appendix/Glossary. http://www.ipcc.ch/pdf/glossary/ar4-wg2.pdf (Accessed September – November 2010).
- Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007. M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html
- Confalonieri, U., B. Menne, R. Akhtar, K.L. Ebi, M. Hauengue, R.S. Kovats, B. Revich and A. Woodward, 2007: Human health. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 391-431.http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter8.pdf
- GEF 2006. The Role of Local Benefits in Global Environmental Programs. Washington, D.C.
- Adaptation Fund: http://www.adaptation-fund.org/system/files/PIMS%204399%20Honduras%20AdaptationFund_FINAL%20%28submission%29.pdf (Accessed

September – November 2010).

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- Schneider, S.H., S. Semenov, A. Patwardhan, I. Burton, C.H.D. Magadza, M. Oppenheimer, A.B. Pittock, A. Rahman, J.B. Smith, A. Suarez and F. Yamin, 2007: Assessing key vulnerabilities and the risk from climate change. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 779-810. http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter19.pdf

- The Habitable Planet. http://www.learner.org/courses/envsci/unit/text.php?unit=12&secNum=8 (Accessed September – November 2010).

- WHO: http://www.wmo.int/pages/mediacentre/press_releases/pr_871_en.html (Accessed September – November 2010).

Where possible, definitions have been quoted word for word from the source.

2.2.1. Percentage of population covered by adequate risk reduction systems

Definitions	
Indicator	This assesses the extent to which the intervention/project or programme helped reduce risk at the area of intervention.
Terms	"Population:" defined by level of project intervention (national, regional, local, etc.). "Adequate risk reduction systems:" according to Hyogo International Strategy for Disaster Reduction (ISDR) and Food and Agriculture Organization (FAO), the following strategic goals should be adopted to reduce risk: (a) Mainstreaming disaster risk management (DRM) into development and sectoral planning. The more effective integration of disaster risk considerations into sustainable development policies, planning and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness, and vulnerability reduction; (b) The development and strengthening of institutions, mechanisms, and capacities at all levels, in particular at the community level, that can systematically contribute to building resilience[7] to hazards; and designing and promoting Community-Based Disaster Risk Management (CBDRM); (c) The systematic incorporation of risk reduction approaches into the design and implementation of emergency preparedness, response and recovery programmes in the reconstruction of affected communities. Integrating key aspects of DRM in emergency rehabilitation programmes; and (d) Operationalizing the paradigm shift from reactive emergency relief to pro-active DRM. Disaster risk management can be framed under three main areas: Risk Identification, Risk Reduction and Risk Transfer. These should be supported by effective governance (e.g. legislation, policies, planning, legal frameworks, etc), as well as institutional capacities at national to local levels, supplemented by effective information and knowledge-sharing mechanisms among different stakeholders. (See A Framework for Disaster Risk Management Derived from HFA. The WMO Disaster Risk Reduction (DRR) Programme strategic goals are derived from the Hyogo Framework for Action 2005-2015 (HFA).
Difficulty of measuring the indicator	Medium
How to measure it (metrics)	
Quantitative	Percentage (includes women – and other vulnerable groups – and men).
Qualitative	Adequacy: include direct analysis of major areas; adequacy/effectiveness of systems

2.2.1. Percentage of population covered by adequate risk reduction systems

	or analysis of perceptions of populations and institutions.
Why measure it	It is assumed that higher percentages of population covered by adequate risk reduction systems reduce likelihood of being affected by risks. Therefore, by understanding the percentage of population adequately covered by risk reduction systems, stakeholders can draw upon lessons learned and address gaps in coverage at any level.
When to measure it	• Projects up to 3 years in length: measure for baseline information and end of project. • Projects longer than 3 years: as above, but also at mid-term. • Follow-up evaluation recommended for understanding long-term results.
How to collect the data	**Census**: to understand baseline and target information: total number of people covered in area of intervention. **Survey**: a sample of population to understand perceptions of adequacy of risk reduction systems. **Direct analysis**: more expensive and time consuming, but more reliable. Use any relevant secondary data (consider age of data).
What is required to collect the data	• Census data or estimates using secondary data, if available, on census or estimates of total population in area • Survey: questionnaire and process for its application and collection of results • Interviewer
How to analyze and interpret the results	Higher percentages of people from area of intervention covered by adequate risk reduction systems decreases the percentage of people from the area that could potentially be more affected by risks from climate change.
Strength and limitations of indicator	Subjectivity of analyst could be a limitation. While a census, primarily at the regional and/or national level, tends to be time consuming and expensive, it can provide insight into the quality of the risk-reduction system.
Outputs	Narrative report including table with percentage of population (disaggregated by gender and vulnerable groups).

Example

2.2.1. Percentage of population covered by adequate risk reduction systems

	Percentage of population	Risk reduction systems (describe)
Baseline	10%	Integrating key aspects of DRM in emergency rehabilitation programmes
Target (and end of project result)	50%	Integrating key aspects of DRM in emergency rehabilitation programmes

References, resources, and tools

- Baas, S., Selvaraju Ramasamy, Jenny Dey DePryck, and Federica Battista. 2008. Disaster Risk Management Systems Analysis. A guide book. FAO. FAO. 2008. ftp://ftp.fao.org/docrep/fao/010/ai504e/ai504e00.pdf (Accessed September – November 2010).

- Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters (HFA) http://www.unisdr.org/eng/hfa/hfa.htm (Accessed September – November 2010).

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- WMO. A Framework for Disaster Risk Management Derived from HFA. http://www.wmo.int/pages/prog/drr/DrmFramework_en.htm# (Accessed September – November 2010).

Where possible, definitions have been quoted word for word from the source.

2.2.2. Number of people affected by climate variability

Definitions	
Indicator	Number of people affected by climate variability is a measure of the number of people suffering losses from extreme weather events (population groups not covered by adequate risk reduction systems).
Terms	"Climate variability:" other statistics (such as standard deviation, statistics of extremes, etc.) of the *climate* on all temporal and spatial scales beyond that of individual weather events. Variability may be due to natural internal processes within the *climate system* (internal variability*)*, or to variations in natural or *anthropogenic* external forces (external variability). See also *climate change*. IPCC "Sensitivity:" the degree to which a system is affected, either adversely or beneficially, by *climate variability* or change. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to *sea-level rise*)" (IPCC 4to assessment glossary).
Difficulty of measuring the indicator	Low at local levels Moderate towards the national level
How to measure it	Number (broken down by gender and, if possible, by vulnerable groups defined in the area of intervention) of people
Why measure it	Gives information on the number of people by area and helps develop action and the extent of coverage that risk mitigation actions should follow
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	Assessment of damage and loss: through secondary and primary data collection: **Primary data**: Survey of households (for smaller project intervention areas). Maps on people affected by climate variability. **Secondary data**: Mostly recommended at subnational and national levels.
What is required to collect the data	• Standardized reporting formats and analysis methods in place; and • Survey
How to analyze and interpret the results	Higher percentages of people from an area of intervention affected by climate variability demand more responses and interventions. However, understanding the degree to which people have been or could be affected should also inform appropriate adaptation responses.

2.2.2. Number of people affected by climate variability

Other relevant indicators:

- Degree to which people are being affected by climate variability
- Areas where people are being affected by climate variability
- Comparison of number of people affected by climate variability pre- and post-intervention

Strength and limitations of indicator

This indicator only estimates *numbers* affected by any climate variability; it cannot measure the *degree* at which people are being affected by climate variability (unless specific questions are included in the questionnaire/survey). At the local level/community level this indicator is easier to measure.

Outputs of measuring activities

Number of people can be presented in tabulated format, broken down by gender.

Example from the field

"CHF 270,984 (USD 259,787 or EURO 195,995) has been allocated from the Federation's Disaster Relief Emergency Fund (DREF) to support the Burkinabe Red Cross Society (BRCS) in delivering immediate assistance to the 1,000 most vulnerable and affected families in addition to the 600 families already assisted with the prepositioned stock provided by the Federation and other Red Cross partners. (DREF 2010)

Number of people affected by climate variability in area of intervention	Area of intervention
1,600 (x women/girls and x men/boys) and x disabled or elderly, etc.	Nationally

References, resources, and tools

- Appendix I: Glossary. http://www.ipcc-wg2.gov/AR4/website/app.pdf (Accessed September – November 2010).
- Baas, S., Selvaraju Ramasamy, Jenny Dey DePryck, and Federica Battista. 2008. Disaster Risk Management Systems Analysis. A guide book. FAO. ftp://ftp.fao.org/docrep/fao/010/ai504e/ai504e00.pdf (Accessed September – November 2010).
- DREF Operation. 2010. http://www.ifrc.org/docs/appeals/10/MDRBF010do.pdf (Accessed September – November 2010).
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?
- Schneider, S.H., S. Semenov, A. Patwardhan, I. Burton, C.H.D. Magadza, M. Oppenheimer, A.B. Pittock, A. Rahman, J.B. Smith, A. Suarez and F. Yamin, 2007: Assessing key vulnerabilities and the risk from climate change. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the

2.2.2. Number of people affected by climate variability

Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 779-810.http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter19.pdf

Where possible, definitions have been quoted word for word from the source.

EXPECTED RESULTS	INDICATORS
Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses
	3.2. Modification of behavior in targeted population
Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1 No. and type of risk reduction actions or strategies introduced at local level
	3.1.2 No. of news outlets in the local press and media that have covered the topic

3.1. Percentage of targeted population aware of predicted adverse impacts of climate change and of appropriate responses

Definitions

Indicator Percentage of targeted population aware of predicted adverse impacts of climate change and of appropriate responses is a measure of the level of knowledge and capacity of the targeted population to respond to adverse effects through appropriate adaptation responses.

Terms "Targeted population": Project proponents should define this term. Is it the population within a city, several communities, women and/or other vulnerable groups, etc.?

"Aware:" having or showing realization, perception or knowledge.

"Predicted adverse impacts of climate change:" as defined by project or programme in the area of intervention, as well as by context analysis, baseline, and scenarios.

"Appropriate responses:" as defined by project or programme in the area of intervention and supported by National Adaptation Programmes of Action (NAPAs) and other relevant information. These could include effective (including sustainable) aspects related to climate change: changing natural resources management practices, building institutions, launching planning processes, raising awareness, promoting technology change, establishing monitoring/early warning systems, changing agricultural practices, empowering people, promoting policy change, improving infrastructure, providing social protection, other. (Hedger et al. IN Van den Berg and Feinstein 2009, page 247).

Difficulty of measuring the indicator Overall medium; it would depend on geographic coverage of intervention.

3.1. Percentage of targeted population aware of predicted adverse impacts of climate change and of appropriate responses

How to measure it	Use scale from 1 to 5 to summarize findings of analysis with respect to awareness of targeted population of predicted adverse impacts of climate change: 5: Fully aware 4: Mostly aware 3: Partially aware 2: Partially not aware 1: Aware of neither predicted adverse impacts of climate change nor of appropriate responses Briefly describe the challenges and/or opportunities supporting any of the potential responses above.
Why measure it	Knowledge of the population's awareness levels enables an appropriate response to increase (if necessary) the baseline level.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term. • Follow-up evaluation recommended for understanding long-term results.
How to collect the data	
Qualitative	Carry out household perception survey, and summarize results through the 1-5 scale above. In-depth studies may be required to assess specific level of awareness of population to predicted adverse impacts and appropriate responses. Where relevant, focus groups can be held with different groups of people (women, youth, ethnic minorities, and entrepreneurs) to stimulate thinking and elicit ideas on changes in their level of awareness.
Quantitative	Collect baseline and target data through the same assessment tool.
What is required to collect the data	• Assessment tools: survey sample (questionnaire), and focus groups • Interviewer(s) • Project reports and publications
How to analyze and interpret the results	Compare percentage of population aware, or not, of predicted impacts and appropriate responses with before-and-after intervention figures. Base interpretation on results of census/survey and estimates.

3.1. Percentage of targeted population aware of predicted adverse impacts of climate change and of appropriate responses

Strength and limitations of indicator	Population aware of climate change and appropriate response measures does not necessarily translate to the application of response measures at the household level. Population perceptions are difficult parameters to assess because opinions and attitudes are highly variable and few secondary data exist. Usefulness of indicator depends on availability and cooperation of informants.
Outputs of measuring activities	Narrative report assisted by tabulation of numerical results (percentages)
Example	"This is a disaster risk communication project based on the use of proven communication practices targeting local communities. Disaster risk reduction (DRR) messages are integrated into the story lines of the very successful BBC educational radio programme called "New Home, New Life", NHNL. As the NHNL was launched by the BBC World Service Trust 13 years earlier to support returning internally displaced Afghans, it is broadcast in two Afghan languages. "The DRR-related project includes a disaster-based radio drama series set in a fictional remote village in Afghanistan. As between 60 to 68 per cent of those who have radio sets in Afghanistan listen to the BBC programme which is broadcast five times a week in the Dari and Pashtu languages, the DRR messages have reached a wide audience. "Between two to four times per month, a programme on the findings of a research conducted at community level and an expert-advised story line on disaster issues are broadcast. The story lines are generally hazard-specific and are run for up to a period of four months as a recurring theme (e.g. April to August on earthquakes). The programmes are rebroadcast at different times of the day and are aired on a variety of radio frequencies and channels to ensure wider audience. The story lines have been operating since July 2006"(UNISDR 2007). "It is early to understand the full impact of the DRR messages, but indications are that the communities are keen to listen and understand more about what they can do in times of disaster. Also, reports from an evaluation team include evidence of success by the previous story lines. An evaluation of the effectiveness of the messages is indeed being conducted, and those who use the programme material in their projects are also being asked to provide information on their effectiveness" (UNISDR 2007).

3.1. Percentage of targeted population aware of predicted adverse impacts of climate change and of appropriate responses

	Percentage of targeted population aware of predicted adverse impacts	Percentage of targeted population aware of appropriate responses	Summary of results (household perception survey)
Baseline	10%	5%	3
Target (by mid term)	30%	20%	3
Target (by end of project)	70%	50%	3
Result (by end of project)			Still Unknown (project being implemented)

References, resources, and tools

- Hedger, et al. IN Van den Berg, R. D., and O. Feinstein (Eds.). 2009. Evaluating Climate Change and Development. World Bank Series on Development, Volume 8.
- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?
- Tearfund. Raising Awareness of Risk through Radio Drama IN UNISDR. International Strategy for Disaster Reduction. Building Disaster 2007. Resilient Communities Good Practices and Lessons Learned: A Publication of the "Global Network of NGOs" for Disaster Risk Reduction. http://www.unisdr.org/eng/about_isdr/isdr-publications/06-ngos-good-practices/ngos-good-practices.pdf

Where possible, definitions have been quoted word for word from the source.

3.2. Modification of behaviour in targeted population

Definitions	
Indicator	Modification in targeted population behaviour is a measure of awareness level and knowledge of the targeted population to respond to adverse effects of climate risks and how appropriate adaptation responses apply this knowledge and awareness.
Terms	"Targeted population:" Is it population within a city, several communities, women and/or other vulnerable groups, etc.? "Modification of behaviour:" changing those behaviours that increase risk of adverse impacts of climate change or decrease appropriate adaptation responses. "Aware:" having or showing realization, perception or knowledge. "Adverse impacts of climate change:" as defined by project or programme in the area of intervention and context analysis, baseline, and scenarios. "Appropriate adaptation responses:" as defined by project or programme in the area of intervention and supported by National Adaptation Programmes of Action (NAPAs) and other relevant information. These could include effective (including sustainable) aspects related to climate change: changing natural resources management practices, building institutions, launching planning processes, raising awareness, promoting technology change, establishing monitoring/early warning systems, changing agricultural practices, empowering people, promoting policy change, improving infrastructure, providing social protection, other. (Hedger et al. IN Van den Berg and Feinstein 2009, page 247).
Difficulty of measuring the indicator	Overall high; it would also depend on geographic coverage of intervention and size of targeted population.
How to measure it	Use scale from 1 to 5 to summarize analysis of how much of the targeted population has modified its behaviour (e.g. applies appropriate adaptation responses): 5: All 4: Almost all 3: Half 2: Some 1: None Briefly describe the challenges and/or opportunities supporting any of the potential responses above.
Why measure it	Knowledge of the population's awareness levels enables an appropriate response to increase (if necessary) the baseline level.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term. • Follow-up evaluation recommended for understanding long-term results.

3.2. Modification of behaviour in targeted population

How to collect the data	
Quantitative	Carry out household perception survey, and summarize results through the 1-5 scale above.
Qualitative	In-depth studies may be required to assess specific level of awareness of population to predicted adverse impacts and appropriate responses. Where relevant, hold focus groups with different groups of people (women, youth, ethnic minorities, and entrepreneurs) to stimulate thinking and elicit ideas on changes in their level of awareness. Collect baseline and target data through the same assessment tool.
What is required to collect the data	• Assessment tools: survey sample (questionnaire), and focus groups • Interviewer(s) • Project reports and publications
How to analyze and interpret the results	Compare percentage of population aware, or not, of predicted impacts and appropriate responses with before-and-after intervention figures. Base interpretation on results of census/survey and estimates.
Strength and limitations of indicator	Usefulness of indicator depends on availability and cooperation of informants. In addition, study sustainability of responses by targeted population since behaviour changes could be transient (or occur only during project implementation).
Outputs of measuring activities	Narrative report assisted by tabulation of numerical results (percentages)

3.2. Modification of behaviour in targeted population

Example

Adaptation measure: Use of bed nets by beneficiaries. To attain medium-term sustainability in the use of bed nets, the project strategy included X, Y, and Z.

	Percentage of targeted population applying adaptation measures	Findings of analysis
Baseline	5%	(2) The adaptation measure was already being applied by population in the last 5 years as a result of …..
Target (by mid term)	20%	(2) During implementation of project, bed-net use among beneficiaries increased 15% from baseline.
Target (by end of project)	50%	(3)
Result (by end of project)	70%	(4)

References, resources, and tools

- Hedger, et al. IN Van den Berg, R. D., and O. Feinstein (Eds.). 2009. Evaluating Climate Change and Development. World Bank Series on Development, Volume 8.
- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- Patchen, Martin. 2006. Public Attitudes and Behavior About Climate Change: What Shapes Them and How to Influence Them. Purdue Climate Change Research Center. http://www.purdue.edu/climate/pdf/Patchen%20OP0601.pdf
- Mendelsohn, R. and A. Dinar. 2005. Exploring Adaptation to Climate Change in Agriculture: The Potential of Cross-Sectional Analysis. Agriculture and Rural Development. Issue 1, JULY 2005. http://siteresources.worldbank.org/INTARD/Resources/Climate_Change_3.pdf
- FAO Home Page: http://www.fao.org/climatechange/49371/en/
- IPCC. Adaptation to Climate Change in the Context of Sustainable Development and Equity. Barry Smit (Canada) and Olga Pilifosova (Kazakhstan). Lead Authors: I. Burton (Canada), B. Challenger (Antigua and Barbuda), S. Huq (Bangladesh), R.J.T. Klein (Germany/The Netherlands), G. Yohe (USA) http://klima.ph/resources/IPCC/TAR/wg2/pdf/wg2TARchap18.pdf

3.2. Modification of behaviour in targeted population

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- Tearfund. Raising Awareness of Risk through Radio Drama IN UNISDR. International Strategy for Disaster Reduction. Building Disaster 2007. Resilient Communities Good Practices and Lessons Learned: A Publication of the "Global Network of NGOs" for Disaster Risk Reduction. http://www.unisdr.org/eng/about_isdr/isdr-publications/06-ngos-good-practices/ngos-good-practices.pdf

Where possible, definitions have been quoted word for word from the source.

3.1.1 Number and type of risk reduction actions or strategies introduced at local level

Definitions	
Indicator	This assesses the extent to which the intervention/project or programme helped improve risk reduction at the local level.
Terms	"Types of risk-reduction actions or strategies at the local level" are Monitoring/Forecasting capacity (EWS, vulnerability mapping system); Policy/regulatory reform; Capacity development; Sustainable forest management; Strengthening infrastructure; Supporting livelihoods; Mangrove reforestation; Coastal drainage and infrastructure; Irrigation system; Community-based adaptation; Erosion control; Soil water conservation; Microfinance; Special programs for women; Livelihoods; Water storage; ICT and information dissemination, other. "Introduced:" through training, dissemination of guidance documents, implementation of pilot activities, etc.
Difficulty of measuring the indicator	Low
How to measure it	Number and type (in separate columns) at local level. Equip communities with tools to participate in adaptation and risk-reduction activities; introduce action or strategy that increases the use of such tools as required at local levels.
When to measure it	Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	
Quantitative	For numbers (baseline and target): Use secondary data and project reports and information.
What is required to collect the data	• Access to secondary data on previous risk-reduction actions and strategies introduced at targeted local levels • Project plans and implementation reports
How to analyze and interpret the results	Number of action or strategies introduced at local levels, which could also be broken down by other information (e.g., total population, geographic area, etc.)
	Consider these other indicators as well:

3.1.1 Number and type of risk reduction actions or strategies introduced at local level

- Number of risk reduction actions/strategies piloted at the local level
- Number of people trained in risk reduction actions/strategies at the local level
- Number of risk reduction strategies designed/implemented at the local level

Strength and limitations of indicator

Number of introduced risk reduction actions and strategies does not necessarily equate to effective application of risk reduction actions and strategies at local level.

Outputs of measuring activities

Narrative report including a table with numbers of actions/strategies

Example

By the end, the project pilot tested one irrigation system in community X (with a total population of 4,000 people).

	Number of actions/strategies	Type
Baseline	1	Mangrove reforestation
Target (at end of project)	5	EWS, strengthening infrastructure, irrigation system, sustainable forest management, supporting livelihoods
Actual result (at end of project)	4	EWS, strengthening infrastructure, irrigation system, supporting livelihoods

References, resources, and tools

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

Where possible, definitions have been quoted word for word from the source.

3.1.2. No. of news outlets in the local press and media that have covered the topic

Definitions	
Indicator	This assesses the extent to which the intervention/project or programme helped increase awareness of processes and adaptation for climate risk reduction at the local level. This indicator assumes that higher numbers of news outlets in the press and media covering the topic mean a higher number of the population reached with the message and therefore aware.
Terms	"News / Media Outlet: A publication or broadcast programme that transmits feature stories and news to the public through various distribution channels." Define "local" for the specific project/programme.
Difficulty of measuring the indicator	Overall low; would depend on geographic coverage of intervention, access to information outlets and overall capacity to monitor the press and media outlets.
How to measure it	Number
Why measure it	Communities need to be informed and aware of adaptation and risk reduction activities to understand and ultimately change their behaviour towards applying adaptive measures. The hidden assumption in the definition of this indicator includes that the higher the number of news outlets covering climate change adaptation and risk reduction processes at the local level, the higher the probability to change the behaviour of individuals reading/watching the news.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	
Quantitative	For numbers (baseline and target): Use secondary data and primary data, and project reports and information. It's important to identify percentage of the population with access to the media.
What is required to collect the data	• Access to secondary data and use of primary data • Interviewers (using phone /in person interviews with media outlets) • Media outlets registries • Project plans and implementation reports
How to analyze and	Number of news outlets and media appearing in the local press, which could also be broken down by other information (e.g., total population, geographic area, etc.).

3.1.2. No. of news outlets in the local press and media that have covered the topic

interpret the results

Consider these indicators as well:

- Number of news outlets directed to local children
- Number of people trained to include adaptation and other climate change aspects within news broadcasts.

Strength and limitations of indicator

Number of news outlets and media covering the topic does not necessarily equate to effective application of risk reduction actions and strategies at local level or changes in behaviour of population listening/reading the news.

Outputs of measuring activities

Narrative report assisted by tabulation of numerical results.

Example

In addition to counting the number of news outlets covering the topic, the project produced 25 news pieces covering climate change adaptation issues in community X. Moreover, local outlets distributed 10 news items.

(Context information: a study by University Y estimated that 60% of the total local population
(40,000 people) has access to radio/television/newspapers, etc.).

	Number of news outlets covering the topic	Number of news pieces developed by project	Type
Baseline	7 (last year)	None	Radio programmes, newspapers, etc.
Target (at end of project)	-	30 (in three years)	10 by radio and 20 by newspapers…
Actual result (at end of project)	10 (last year)	25 (in three years)	5 by radio and 20 by newspapers…

References, resources, and tools

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

3.1.2. No. of news outlets in the local press and media that have covered the topic

- Patchen, Martin. 2006. Public Attitudes and Behavior About Climate Change: What Shapes Them and How to Influence Them. Purdue Climate Change Research Center. http://www.purdue.edu/climate/pdf/Patchen%20OP0601.pdf
- http://www.google.com/search?hl=en&client=firefox-a&hs=2hz&rls=org.mozilla:en-US:official&defl=en&q=define:media+outlet&sa=X&ei=nahyTe2DJcL38AaK29zqDg&ved=0CBQQkAE

Where possible, definitions have been quoted word for word from the source.

EXPECTED RESULTS	INDICATORS
Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors	4.1. Development sectors' services responsive to evolving needs from changing and variable climate
	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress
Output 4: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.1. No. and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate variability and change (by type)
	4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)

4.1. Development sectors' services responsive to evolving needs from changing and variable climate

Definitions

Indicator This assesses the extent to which project/programme interventions of improvement and adaptation of development sector's services achieved their intended results.

Terms "Development sector's services (health and social services):" Health and social development projects support the reform of secondary education; control the spread of infectious diseases; increase capacity of health services; provide national-level health-policy assistance; provide expanded and improved reproductive health services; and improve conditions for vulnerable children and youth.

"Responsive:" reacting quickly and positively (effective in terms of its adaptation to climate change). Project proponents define "responsive" by answering the question: what is needed for development services to be fully responsive to climate change?).

Define scale of intervention: national, regional, local; describe.

Difficulty of measuring the indicator: Moderate

How to measure it: Analyze how project interventions are enabling services of targeted development sectors' services to respond to climate change. Specifically, the ratings below measure how many defined elements are responding to climate change.

4.1. Development sectors' services responsive to evolving needs from changing and variable climate

Summarize in an overall scale (1-5):
5: Highly responsive (All defined elements)
4: Mostly responsive (Most defined elements)
3: Moderately responsive (Some defined elements)
2: Partially responsive (Lacks most elements)
1: Non responsive (Lacks all elements)

Briefly describe the challenges and/or opportunities supporting any of the potential responses above.

Why measure it

To understand increased adaptive capacity within relevant development sectors.

When to measure it

- Projects up to 3 years in length: measure for baseline information and at end of project.
- Projects longer than 3 years: as above, but also at mid-term.
- Follow-up evaluation recommended for understanding long-term results.

How to collect the data

- Depends on service and scale of intervention
- Assessment should be completed for each service adapted

What is required to collect the data

- Technical documents related to targeted service(s), including information contained in payments and financial records.
- Updated information on actual and perceived status of the service through participatory consultation methods with beneficiaries and local authorities.
- Documents and tools to assess level of improvement and adaptation of service.
- Quantitative data on economic or technical features. Secondary data sources, particularly related to regularly collected government data, may prove useful.
- Notebook, pencil and/or computer.

How to analyze and interpret the results

The results of services may relate to technical, environmental, economic, and social dimensions. Data can be presented as financial resources used for improvement/adaptation of physical asset.

Strength and limitations of indicator

Subjectivity of analyst could be a limitation. It is important to understand development sector services in light of climate change and be familiar with sector assessments.

4.1. Development sectors' services responsive to evolving needs from changing and variable climate

Outputs of measuring activities: Narrative report; use of tables and graphs as required

Example: Malaria Treatment and Prevention Project (March 2003 - March 2011)

This project focuses on the expansion of another project (X) to ensure effective diagnosis and treatment of malaria in Region Y and eventually nationwide. The project supports the National Anti Malaria Programme to improve clinical and laboratory services for malaria patients in Region Y.

	Development sector (describe)	Geographic scale	Assessment results of responsiveness at targeted area
Baseline	Health (Control the spread of infectious diseases; increased capacity of health services)	Region Y	1 (describe)
	Health (Control the spread of infectious diseases; increased capacity of health services)	Nationally	1 (describe)
Target	Health (Control the spread of infectious diseases; increased capacity of health services)	Region Y	4 (describe)
	Health (Control the spread of infectious diseases; increased capacity of health services)	Nationally	3 (describe)

References, resources, and tools

- Confalonieri, U., B. Menne, R. Akhtar, K.L. Ebi, M. Hauengue, R.S. Kovats, B. Revich and A. Woodward, 2007: Human health. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds. Cambridge University Press, Cambridge, UK, 391-431. http://www.ipcc-wg2.gov/AR4/website/08.pdf

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.

4.1. Development sectors' services responsive to evolving needs from changing and variable climate

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- USAID Georgia. http://georgia.usaid.gov/index.php?m=19 (Accessed September – November 2010).

Where possible, definitions have been quoted word for word from the source.

4.1.1. Number and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate change variability and change (by type).

Definitions	
Indicator	This is the assessment of the extent to which project/programme interventions address services to respond to climate change variability.
Terms	"Type of development service:" for example, for health and social development projects: support the reform of secondary education; control the spread of infectious diseases; increased capacity of health services; provision of national-level health policy assistance; provision of expanded and improved reproductive health services; and improved conditions for vulnerable children and youth.
Difficulty of measuring the indicator	Low
How to measure it	Number and type
Why measure it	Number of development services addressed by the intervention provides information on availability of adapted services available for human use in response to climate change impacts
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	Numbers and type in a table format. Baseline and target information should be included.

4.1.1. Number and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate change variability and change (by type).

What is required to collect the data

- Technical documents related to targeted service(s), including information contained in payments and financial records.
- Updated information on actual and perceived status of the service through participatory consultation methods with beneficiaries and local authorities.
- Documents and tools to assess level of improvement and adaptation of service.
- Quantitative data on economic or technical features. Secondary data sources, particularly related to regularly collected government data, may prove useful.
- Notebook, pencil and/or computer.

How to analyze and interpret the results

Present results in table accompanied by narrative form to clarify and highlight points.

Examples on how the data might be presented/analyzed (other indicators that can be used to complete information):

- Total number of services addressed by project/programme
- Number of existing services previously addressed in area of intervention

Strength and limitations of indicator

Number of development-sector services addressed during the project does not inform on sustainability or effectiveness of these services against the impacts of climate variability.

Outputs of measuring activities

Table including number and type of development sector services and/or narrative format.

Example

	Number	Development sector (describe)	Geographic scale
Baseline	0	Health (Control the spread of infectious diseases; increased capacity of health services)	Region Y
	1	Health (Control the spread of infectious diseases; increased capacity of health services)	Nationally
Target	1	Health (Control the spread of infectious diseases; increased capacity of health services)	Region Y
	1	Health (Control the spread of infectious diseases; increased capacity of health services)	Nationally

4.1.1. Number and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate change variability and change (by type).

References, resources, and tools

- Confalonieri, U., B. Menne, R. Akhtar, K.L. Ebi, M. Hauengue, R.S. Kovats, B. Revich and A. Woodward, 2007: Human health. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds. Cambridge University Press, Cambridge, UK, 391-431. http://www.ipcc-wg2.gov/AR4/website/08.pdf

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- USAID Georgia. http://georgia.usaid.gov/index.php?m=19 (Accessed September – November 2010).

Where possible, definitions have been quoted word for word from the source.

4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	
Definitions	
Indicator	This assesses the extent to which project/programme interventions of improvement and adaptation of physical assets reached their intended results/objectives.
Terms	"Physical infrastructure includes:" Roads, Government Buildings, Causeways, Airports, Schools, Training Centres, Hospitals, other. "Improved:" should include technical, environmental, social, and financial cost-benefits analysis (see below).
Difficulty of measuring the indicator	Moderate
How to measure it	Use scale (1-5) for summarizing extent to which all technical, environmental, social, and financial/economic aspects of infrastructure have improved: 5: Fully improved 4: Mostly Improved 3: Moderately improved 2: Somewhat improved 1: Not improved Briefly describe the challenges and/or opportunities supporting any of the potential responses above. A framework of performance questions (see examples below) that can be used to analyze the effectiveness (including sustainability) of infrastructure and facilities (adapted from IFAD) include: <u>Technical:</u> **Design:** Are the structures sound? Do they have structural problems? **Soundness:** Were high-quality materials used for construction? **Operation and maintenance (ability):** Do those responsible have the required skills for operation and maintenance? **Environmental:** Are environmental consequences undermining the sustainability of project benefit? Is the location at risk of erosion? <u>Social:</u> **Use:** Are people using the infrastructure? **Participation:** Are beneficiaries involved in maintenance and management? In addition, assess a series of factors to understand success of climate change

4.2. Physical infrastructure improved to withstand climate change and variability-induced stress

	adaptation measures: effectiveness, flexibility, equity, efficiency, and sustainability (see Hedger et al 2009).
Why measure it	Combine technical aspects (related to the quality of design or construction materials, etc.) with broader considerations (related to the managerial capacity of beneficiaries and others involved in the management of the infrastructure, the level of support from local institutions, etc.) to assess the sustainability of the facilities constructed/ rehabilitated by the project.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term. • Follow-up evaluation recommended for understanding long-term results.
How to collect the data	Depends on targeted physical asset(s). For example, kilometres of road, hectares of land under irrigation systems, square metres or number of government buildings, etc. Count the number of infrastructure/facilities that the project/programme has strengthened, constructed, and/or modified. Calculate this number based on the infrastructure/facilities where strengthening and construction/modification works have been fully completed during the period under review. Complete assessment for each physical asset improved/adapted effectively. Gather data relevant for formulating this assessment from various sources: institutions or groups managing the infrastructure can provide important insights on the factors affecting sustainability. It is, however, important to keep in mind that these stakeholders may have a vested interest in under (or over) estimating performance figures, threats, risks, etc. The assessment may also be based on studies by engineers, institutional specialists, etc.
What is required to collect the data	• Technical documents related to the construction process, including information contained in payments and financial records. • Updated information on actual and perceived status of construction/rehabilitation through participatory consultation methods with beneficiaries and local authorities. • Documents and tools to assess level of improvement and adaptation of infrastructure. • Quantitative data on economic or technical features. Secondary data sources, particularly related to regularly collected government data, may prove useful.
How to	The results of productive infrastructure may relate to three dimensions:

4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	
analyze and interpret the results	• Technical results of irrigation schemes include the increased intake of canals, provision of adequate water to each field, etc. • Economic results relate to increases in yields, changes in cropping patterns (to more high value crops) or employment opportunities at the farm level. • Social results relate to the improvement in the quality of life of farmers served by irrigation schemes. Other indicators can and should be used for measuring whether the project/programme is providing farmers with adequate access to water. For example: land productivity per unit of irrigated area or percentage amount of delivered vs. required water. Present data as financial resources used for improvement/adaptation of physical asset.
Strength and limitations of indicator	Further indicators are needed to understand effectiveness of improvements.
Outputs of measuring activities	Narrative report, use of tables and graphs as required
Example	By the end of project implementation, 4 out of 10 bridges adapted are also operational. Beneficiaries and local stakeholders highlighted the low commitment of authorities in ensuring adequate funds for proper functioning of the adapted facilities. Only 3 bridges are likely to be sustainable; the other 6 have been moderately improved (include further information from assessment).
References, resources, and tools	- Hedger M., et al. Evaluation of Adaptation to Climate Change from a Development Perspective IN Van den Berg, R. D., and O. Feinstein (Eds.). 2009. Evaluating Climate Change and Development. World Bank Series on Development, Volume 8. - IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook. - NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing? Where possible, definitions have been quoted word for word from the source.

4.1.2. Number of physical assets strengthened, constructed, or moved to withstand conditions resulting from climate variability and change (by asset types)

Definitions	
Indicator	Number and type of physical assets strengthened, constructed, or moved to withstand conditions resulting from climate variability and change is a measure of physical adaptation efforts to withstand conditions resulting from climate variability and change.
Terms	"Types of physical assets:" Roads; Government Buildings; Causeways; Airports; Schools; Training Centres; Hospitals, drinking water systems, other. "Strengthened" assumes the physical asset already exists but its capacity will be improved to withstand conditions resulting from climate variability more effectively. "Constructed" assumes the physical asset does not exist. "Moved or changed in location or position" assumes the physical asset already exists, but needs to be rebuilt or constructed somewhere else. e.g., road which would be covered by sea level rise in future (scenario); move the road if stakeholders believe this is one of the cost-effective adaptation options.
Difficulty of measuring the indicator	Low
How to measure it	Number and type (entered in separate columns)
Why measure it	Physical assets established/constructed, strengthened, and/or moved provide information on adapted physical resources available for human use in response to climate change impacts.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	Count the number of infrastructure/facilities that the project/programme has strengthened, constructed, and/or modified. Calculate this number based on the infrastructure/facilities where strengthening and construction/modification works have been fully completed during the period under review.
What is required to collect the data	• Technical documents related to construction process (including information contained in payments and financial records) • Notebook, pencil and/or computer
How to	Present results in table accompanied by narrative to clarify and highlight points.

4.1.2. Number of physical assets strengthened, constructed, or moved to withstand conditions resulting from climate variability and change (by asset types)

analyze and interpret the results

Examples on how the data might be presented/analyzed (other indicators that can be used to complete information):

- Total number of physical assets addressed by project/programme
- Total number of physical assets strengthened, modified or constructed
- Previous physical assets established/strengthened/modified in area of intervention
- Total resources (time and funds) used to strengthen physical asset, etc.

Strength and limitations of indicator

Number of physical assets addressed during the project does not provide information about sustainability or effectiveness of these structures against the impacts of climate change.

Outputs of measuring activities

Table including number and type of asset addressed by project/programme. Should also include baseline information and achievement (or not) of set target.

Example

	Number of assets	Type of asset	Project Intervention
Baseline	4	Bridges	Already constructed
Target (end of project)	4		Strengthened
Actual result (end of project)	3		Strengthened

References, resources, and tools

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

Where possible, definitions have been quoted word for word from the source.

EXPECTED RESULTS	INDICATORS
Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress
Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)

5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress

Definitions

Indicator

This assesses the extent to which project initiatives aimed at maintaining or improving natural resources (land, water, soil, forests, etc.) have reached their intended objectives.

Terms

"Ecosystems" provide many goods and services that are of vital importance for the functioning of the biosphere, and provide the basis for the delivery of tangible benefits to human society. Hassan et al. (2005); define "ecosystems services" to include supporting, provisioning, regulating, and cultural services.

"Types of natural assets[54]" consist of biological assets (produced or wild), land, and water areas with their ecosystems, subsoil assets, and air.

"State:" Established, maintained or improved. For example: transformation of degraded land, reduced deforestation, improved biodiversity, enhanced integrity of ecosystem, increased adoption of environmentally friendly practices, and utilization of alternative energy sources, etc.

These natural assets and ecosystem services are maintained or improved through: Ecosystem Management, Forest Landscape Management, Mangrove Restoration, Soil and Water Conservation Management, Production Landscape Management, other.

Define geographic scale of intervention.

Difficulty of measuring the indicator

Moderate (mainly depending on area of intervention and type of asset).

How to measure it

Depends on the targeted natural asset

- Biological (species): measure through changes in population numbers (dynamics, structure, etc.)

[54] As defined by the OECD: http://stats.oecd.org/glossary/detail.asp?ID=1729

5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress

- Land: measure changes in hectares (e.g. hectares improved through soil and water conservation methods such as reduced deforestation, improved integrity of ecosystems, reduced erosion and degradation, improved water retention, etc.). Technical studies by government or specialized agencies, satellite maps, and before-and-after photographic evidence to estimate the area of improved land.

- Baseline data will be necessary to estimate the change. Consider establishing partnerships with specialized agencies to collect data needed to assess changes in soil and water conservation.

Supporting indicators baseline and target (as well as contextual information) are needed such as the following:

- Farmers adopting recommended technologies
- Ha. of land improved
- Average deforestation rate
- Etc.

Scale 1 – 5 (used to summarize assessment of interventions towards maintenance or improvement of ecosystem services and/or natural assets under climate change and variability-induced stress—specifically, how many elements are present in the intervention):

5: Very effective (All elements are present)
4: Effective (Most elements are present)
3: Moderately effective (Some elements are present)
2: Partially effective (Most elements are not present)
1: Ineffective (No elements are present)

Describe.

Why measure it

Ecosystem services and/or natural assets effectively established, improved, or created would give information on availability of resources for human access and sustainable use, as well as overall ecosystem health.

When to measure it

- Projects up to 3 years in length: measure for baseline information and at end of project.
- Projects longer than 3 years: as above, but also at mid-term.
- Follow-up evaluation recommended for understanding long-term results.

How to collect the data

- Findings of special studies, mapping exercises, environmental monitoring systems (such as GIS), before-and-after photographs, etc.: to assess the results of natural resources management and conservation programmes.
- Site visits: to highlight the most visible changes that occurred after the implementation of project initiatives.

5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress

	• Beneficiaries and local authorities: to provide useful information (including perceptions) on changes that occurred in the agro-ecological environment as a result of project initiatives.
What is required to collect the data	• Tools for evaluating health of ecosystem and natural asset (primary data and/or perception survey) • Secondary data • Surveys, questionnaire, interviews
How to analyze and interpret the results	If the target results are quantified in the Logframe or in other project documents, compare actual achievement with the stated target to develop rating. Where relevant, consider the potential negative impacts on the environment in assessing the effectiveness of financed initiatives (IFAD).
Strength and limitations of indicator	A series of factors (from type of natural asset, area covered in the intervention, etc.) determines whether it will be easy or difficult to measure the indicator. For example, abundance of sessile species within a small area would prove easier than abundance of pelagic species within a large area (adapted from NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004).
Outputs of measuring activities	Narrative report with graphs and tables
Example	Although the deforestation rate remains high at approximately 2%, in PY5 an increasing number of farmers have adopted environmentally friendly practices. The total land improved after the adoption of these practices is still below the initial target (800 ha. out of the planned 2000). Overall, interventions are rated as moderately effective (3) (Adapted from IFAD).
References, resources, and tools	- Assets of the natural environment. These consist of biological assets (produced or wild), land and water areas with their ecosystems, subsoil assets, and air. *Choudhury and Jansen (1997).* - Fischlin, A., G.F. Midgley, J.T. Price, R. Leemans, B. Gopal, C. Turley, M.D.A. Rounsevell, O.P. Dube, J. Tarazona, A.A. Velichko, 2007: Ecosystems, their properties, goods, and services. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 211-272. http://www.ipcc-wg2.gov/AR4/website/04.pdf - Glossary of statistic terms. http://stats.oecd.org/glossary/detail.asp?ID=1729 (Accessed September – November 2010). - Glossary of Environment Statistics, Studies in Methods, Series F, No. 67, United Nations, New York, 1997.

- http://www.iucn.org/about/union/commissions/wcpa/wcpa_puball/wcpa_pubsubject/wcpa_climatepub/?2085/Securing-protected-areas-in-the-face-of-global-change-key-lessons-learned-from-case-studies-and-field-learning-sites-in-protected-areas

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.

- IPCC. 2002. Climate Change and Biodiversity. IPCC Technical Paper V. http://www.ipcc.ch/pdf/technical-papers/climate-changes-biodiversity-en.pdf

- IUCN World Commission on Protected Areas (IUCN-WCPA) (2008). Establishing Marine Protected Area Networks—Making It Happen. Washington, D.C.: IUCN-WCPA, National Oceanic and Atmospheric Administration and The Nature Conservancy. 118 p. http://www.wdpa-marine.org/MPAResources/MPAPlanningResources/Docs/Establishing%20resilient%20MPA%20networks-making%20it%20happen.pdf

- Nigel Dudley, Sue Stolton, Alexander Belokurov, Linda Krueger, Nik Lopoukhine, Kathy MacKinnon, Trevor Sandwith and Nik Sekhran. 2009. Natural Solutions - Protected Areas: Helping people cope with climate change. A report funded and commissioned by IUCN-WCPA, TNC, UNDP, WCS, The World Bank and WWF http://cmsdata.iucn.org/downloads/natural_solutions.pdf

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- Shadie, Peter, ed.; Epps, Minna, ed. Securing protected areas in the face of global change : key lessons learned from case studies and field learning sites in protected areas. IUCN; IUCN World Commission on Protected Areas ; IUCN, Asia Regional Office Bangkok, TH : IUCN Asia Regional Office, 2008. 49p. ill. ISBN 978-974-04-6136-4.

- Thompson, I., Mackey, B., McNulty, S., Mosseler, A. 2009. Forest Resilience, Biodiversity, and Climate Change. A synthesis of the biodiversity/resilience/stability relationship in forest ecosystems. Secretariat of the Convention on Biological Diversity, Montreal. Technical Series no. 43, 67 pages. http://www.cbd.int/doc/publications/cbd-ts-43-en.pdf

- WB. 2010. Convenient Solutions to an Inconvenient Truth. Ecosystem Based Approaches To Climate Change. http://issuu.com/world.bank.publications/docs/9780821381267

Where possible, definitions have been quoted word for word from the source.

5.1. Number and type of natural resource assets created, maintained, or improved to withstand conditions resulting from climate variability and change (by type of assets)

Definitions	
Indicator	This assesses the extent to which project initiatives aimed at re-establishing/regenerating (e.g. mangrove ecosystem), maintaining, or improving natural resources (land, water, soil, forests, etc.) have reached their intended objectives.
Terms	"Ecosystems" provide many goods and services that are of vital importance for the functioning of the biosphere, and provide the basis for the delivery of tangible benefits to human society. Hassan et al. (2005); define "ecosystems services" to include supporting, provisioning, regulating, and cultural services. "Types of natural assets[55]" consist of biological assets (produced or wild), land, and water areas with their ecosystems, subsoil assets, and air. "Established, maintained or improved:" transformation of degraded land, reduced deforestation, improved biodiversity, enhanced integrity of ecosystem, increased adoption of environmental friendly practices, and utilization of alternative energy sources, etc. These natural assets and ecosystem services are maintained or improved through: Ecosystem Management, Forest Landscape Management, Mangrove Restoration, Soil and Water Conservation Management, Production Landscape Management, other (define). Define geographic scale of intervention.
Difficulty of measuring the indicator	Low
How to measure it	Number of interventions by type of natural asset and intervention.
Why measure it	Natural assets and ecosystems addressed provide information on availability of adapted natural resources available for human use in response to climate change impacts.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	• Findings of special studies, mapping exercises, environmental monitoring systems (such as GIS), before-and-after photographs, etc.: to assess the results of natural resources management and conservation programs.

[55] As defined by the OECD: http://stats.oecd.org/glossary/detail.asp?ID=1729

5.1. Number and type of natural resource assets created, maintained, or improved to withstand conditions resulting from climate variability and change (by type of assets)

- Site visits: to highlight the most visible changes that occurred after the implementation of project initiatives.
- Beneficiaries and local authorities: to provide useful information (including perceptions) on changes that occurred in the agro-ecological environment as a result of project initiatives.
- Project documents (including description of interventions in targeted area(s) and description of targeted natural asset(s).

What is required to collect the data

Present results in table accompanied by narrative to clarify and highlight points.

How to analyze and interpret the results

Examples on how the data might be presented/analyzed (other indicators that can be used to complete information):

- Total number of natural assets addressed by project/programme
- Total number of natural assets established, maintained, or improved
- Previous natural assets established/maintained in area of intervention

Strength and limitations of indicator

This indicator measures neither the effectiveness (including sustainability) of interventions to create, maintain, or improve natural assets addressed nor the state of the natural asset.

Outputs of measuring activities

Table with number and type of natural assets (should include comparison with baseline data).

Example

	Number	Type of natural asset	Intervention
Baseline	1	Water	Water: conservation of water resources in the upper river basin X (specifically: intervention x, y, and z).
Target (mid term)	3	Water, coastal sand dune system, species x	Water: conservation of water resources in the upper river basin X (specifically: intervention x, y, and z); coastal sand dune system (maintenance of sand dune system for the protection of …; specifically interventions x, y, and z); ….

5.1. Number and type of natural resource assets created, maintained, or improved to withstand conditions resulting from climate variability and change (by type of assets)

Target (end of project)	5	Water, coastal sand dune system, species x, species Y, lake ecosystem	Water: conservation of water resources in the upper river basin X (specifically: intervention x, y, and z); coastal sand dune system (maintenance of sand dune system for the protection of …; specifically interventions x, y, and z); ….
Actual result (end of project)	3	Water, coastal sand dune system, species x	Water: conservation of water resources in the upper river basin X (specifically: intervention x, y, and z); coastal sand dune system (maintenance of sand dune system for the protection of …; specifically interventions x, y, and z); ….

References, resources, and tools

- Assets of the natural environment. These consist of biological assets (produced or wild), land and water areas with their ecosystems, subsoil assets and air. *Choudhury and Jansen (1997).*

- Fischlin, A., G.F. Midgley, J.T. Price, R. Leemans, B. Gopal, C. Turley, M.D.A. Rounsevell, O.P. Dube, J. Tarazona, A.A. Velichko, 2007: Ecosystems, their properties, goods, and services. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 211-272. http://www.ipcc-wg2.gov/AR4/website/04.pdf

- Glossary of statistic terms. http://stats.oecd.org/glossary/detail.asp?ID=1729 (Accessed September – November 2010).

- Glossary of Environment Statistics, Studies in Methods, Series F, No. 67, United Nations, New York, 1997.

- http://www.iucn.org/about/union/commissions/wcpa/wcpa_puball/wcpa_pubsubject/wcpa_climatepub/?2085/Securing-protected-areas-in-the-face-of-global-change-key-lessons-learned-from-case-studies-and-field-learning-sites-in-protected-areas

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.

- IPCC. 2002. Climate Change and Biodiversity. IPCC Technical Paper V. http://www.ipcc.ch/pdf/technical-papers/climate-changes-biodiversity-en.pdf

- IUCN World Commission on Protected Areas (IUCN-WCPA) (2008). Establishing

5.1. Number and type of natural resource assets created, maintained, or improved to withstand conditions resulting from climate variability and change (by type of assets)

Marine Protected Area Networks—Making It Happen. Washington, D.C.: IUCN-WCPA, National Oceanic and Atmospheric Administration and The Nature Conservancy. 118 p. http://www.wdpa-marine.org/MPAResources/MPAPlanningResources/Docs/Establishing%20resilient%20MPA%20networks-making%20it%20happen.pdf

- Nigel Dudley, Sue Stolton, Alexander Belokurov, Linda Krueger, Nik Lopoukhine, Kathy MacKinnon, Trevor Sandwith and Nik Sekhran. 2009. Natural Solutions - Protected Areas: Helping people cope with climate change. A report funded and commissioned by IUCN-WCPA, TNC, UNDP, WCS, The World Bank and WWF http://cmsdata.iucn.org/downloads/natural_solutions.pdf

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- Shadie, Peter, ed.; Epps, Minna, ed. Securing protected areas in the face of global change: key lessons learned from case studies and field learning sites in protected areas. IUCN; IUCN World Commission on Protected Areas ; IUCN, Asia Regional Office Bangkok, TH : IUCN Asia Regional Office, 2008. 49p. : ill. ISBN 978-974-04-6136-4

- Thompson, I., Mackey, B., McNulty, S., Mosseler, A. 2009. Forest Resilience, Biodiversity, and Climate Change. A synthesis of the biodiversity/resilience/stability relationship in forest ecosystems. Secretariat of the Convention on Biological Diversity, Montreal. Technical Series no. 43, 67 pages. http://www.cbd.int/doc/publications/cbd-ts-43-en.pdf

- WB. 2010. Convenient Solutions to an Inconvenient Truth. Ecosystem Based Approaches To Climate Change. http://issuu.com/world.bank.publications/docs/9780821381267

Where possible, definitions have been quoted word for word from the source.

EXPECTED RESULTS	INDICATORS
Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1 Percentage of households and communities having more secure access to livelihood assets
	6.2. Percentage of targeted population with sustained climate-resilient livelihoods
Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community livelihood strategies
	6.1.2. Type of income sources for households generated under climate change scenario

6.1 Percentage of households and communities having more secure access to livelihood assets

Definitions

Indicator Percentage of households with more secure access to livelihood assets is a measure of how targeted individual and community livelihoods are strengthened in relation to climate change impacts and variability.

Terms "More secure access:" According to IFAD, secure access includes issues of availability, diversity, amount, balance, and quality of assets, as well as sustainability of assets, among other considerations. See reference below.

Define within project frameworks livelihood asset(s) targeted. Livelihood assets include natural, physical, social, human, personal, and financial capitals or assets (see IFAD, DFID or LBS 2006).

Define targeted population/community(ies).

Difficulty of measuring the indicator: Moderate [according to scale intervention and type and number of livelihood asset(s) targeted]

How to measure it: Percentage (number of households/communities with improved access after intervention/total number of households in targeted area with improved access after intervention)

Description (result of survey)

6.1 Percentage of households and communities having more secure access to livelihood assets

Summarize analysis of improved access to targeted livelihood asset through scale (1-5):

5: Very high improvement
4: High improvement
3: Moderate improvement
2: Limited improvement
1: No improvement

Describe (Secure access includes issues of availability, diversity, amount, balance, and quality of assets, as well as sustainability of assets (among other considerations).

Why measure it

Household livelihoods, which includes how people have access to and use assets to make a living, are a key part of understanding project beneficiary characteristics. Greater understanding of these livelihoods will allow the project manager to measure and understand the impacts of climate change and climate change variability on targeted beneficiaries more effectively.

When to measure it

- Projects up to 3 years in length: measure for baseline information and at end of project.
- Projects longer than 3 years: as above, but also at mid-term.
- Follow-up evaluation recommended for understanding long-term results.

How to collect the data

Percentage of households with more secure access to livelihood assets in targeted area.

First, collect and review secondary socioeconomic data at the targeted level of project/programme. Data may be available from the census bureau or other census information institution or public offices and institutions with missions focused on livelihood improvement in the targeted area.

State baseline and targeted indicators clearly:

- Total number of households in the area
- Number of targeted households
- Any information on previously present livelihood asset in the area
- Targeted livelihood assets by project/programme

In addition, to measure this indicator, determine the extent to which targeted households believe their access to more secure livelihood assets has improved. If necessary, collect primary data through a survey or semi-structured interview.

Questions could include:

- What are the different sources of income in the household?
- What are the different livelihoods assets in the household? List all.
- What is the relative importance of targeted livelihood asset in comparison with other livelihood assets?

6.1 Percentage of households and communities having more secure access to livelihood assets

	• Do beneficiaries perceive that there has been an improvement in the level of access to more secure assets? • Etc. Complete further information collection and analysis, if helpful. For example, break down the number of households into different categories of analysis (income level, total number of persons integrating the household, desegregation by gender or vulnerable groups, etc.): number of households with X level of income with more secure access to livelihood assets or number of households with more than two family members with more secure access to livelihoods assets. For this, further baseline information and adjustment in questionnaire needs to be addressed. Data should be collected from a sample over time to understand any shifting (increasing/decreasing) in level of access of livelihood assets.
What is required to collect the data	• Survey forms • Sample or list of households to be surveyed • Interviewers • Secondary data (documents, study results, etc.)
How to analyze and interpret the results	Present results in narrative accompanied by tables, charts, and figures to clarify and highlight points. Include quantitative information in tables and as needed. Examples on how the data might be presented/analyzed (other indicators): • Total number of households in area • Previous common livelihood assets in area • Perception on level of security of livelihood assets (new livelihood asset or lost livelihood assets) • Household income in project area (USD)
Strength and limitations of indicator	**Strength:** similarities in household opinions may be obtained inexpensively (depending on extension of targeted area) and show major challenges/opportunities. **Limitation:** household perceptions are difficult parameters to assess because perceptions, opinions, and attitudes are highly variable and few secondary data exist on household perception. In addition, depending on number and extent of household, collection of information may be time consuming and therefore expensive. Usefulness of indicator depends on availability and cooperation of informants on sensitive issues.
Outputs of measuring activities	Table and narrative report; Venn diagrams.

6.1 Percentage of households and communities having more secure access to livelihood assets

Example: The project created 100 new jobs, mostly for women, in the enterprises benefiting from project initiatives. This is partially in line with the target established in the Logframe. The effectiveness of project in terms of generation of employment opportunities is rated as 3 (adapted from IFAD 2007)…

	Livelihood asset/describe	Percentage of households/ Community	Summary of analysis
Baseline	Financial capital	30%	1: No improved access to any targeted livelihood asset
	Human capital	10%	3: Moderate improvement of access to some or all the targeted livelihood asset
Target and end of project result	Financial capital	60%	3: Moderate improvement of access to some or all the targeted livelihood asset
	Human capital	10%	5% 4. High improvement of access to some or most targeted livelihood asset; and 5% 3: Moderate improvement of access to some or all the targeted livelihood asset

References, resources, and tools

- BOND, R. and N. MUKHERJEE. 2002. LIVELIHOOD ASSET STATUS TRACKING: AN IMPACT MONITORING TOOL? Journal of International Development. J. Int. Dev. 14, 805–815. http://portals.wi.wur.nl/files/docs/ppme/Livelihood_asset_tracking_a_tool_for_impact_monitoring.pdf

- DFID. 1999. SUSTAINABLE LIVELIHOODS GUIDANCE SHEETS. http://www.nssd.net/pdf/sectiont.pdf

- GEF 2006. The Role of Local Benefits in Global Environmental Programs. Washington, D.C.

- Hedger M., et al. Evaluation of Adaptation to Climate Change from a Development Perspective IN Van den Berg, R. D., and O. Feinstein (Eds.). 2009. Evaluating Climate Change and Development. World Bank Series on Development, Volume 8.

- IFAD. Understanding poor people and their livelihoods. http://www.ifad.org/english/institutions/guidance/2.pdf (Accessed September - November 2010)

6.1 Percentage of households and communities having more secure access to livelihood assets

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- An IFAD Sustainable Livelihoods Framework. http://www.ifad.org/sla/framework/index.htm (Accessed September - November 2010).

- Samaki Consultants. Ltd. 2003. Livelihood Assets Required for an East Africa FADs Programme. Final Technical Report. http://www.fmsp.org.uk/Documents/r8249/r8249_1.pdf

Where possible, definitions have been quoted word for word from the source.

6.1.1. Number and type of adaptation assets (physical as well as knowledge) created in support of individual or community livelihood strategies

Definitions

Indicator This indicator would mainly measure the state of demonstration/pilot interventions and/or investments.

Terms "Adaptation assets:" Assets, as used here, are resources which people use not only to generate additional flows and stock (Ford 2004, cited in Moser 2007), but which also give 'the capability to be and to act' (Bebbington 1999: 2022). Assets thus include both tangible capitals (natural, physical, and financial) as well as intangible capitals (human, social, and personal).

"Physical capital:" the stock of plant, equipment, infrastructure and other productive resources owned by individuals, the business sector, or the country itself.

"Financial capital:" the financial resources available to people (savings, supplies of credit).

"Human capital:" investments in education, health, and nutrition of individuals. Labour is linked to investments in human capital; health status influences people's capacity to work, and skill and education determines the returns from their labour.

"Social capital:" an intangible asset, defined as the rules, norms, obligations, reciprocity, and trust embedded in social relations, social structures, and societies' institutional arrangements. It is embedded at the micro-institutional level (communities

6.1.1. Number and type of adaptation assets (physical as well as knowledge) created in support of individual or community livelihood strategies

	and households), as well as in the rules and regulations governing formalized institutions in the marketplace, political system, and civil society. "Natural capital:" the stock of environmentally provided assets such as soil, atmosphere, forests, minerals, water, and wetlands. In rural communities land is a critical productive asset for the poor; in urban areas, land for shelter is also a critical productive asset. Sources: Bebbington (1999); Carney (1998); Moser (1998); Narayan (1997); Portes (1998); Putnam (1993). "Personal capital:" self-esteem. "Adaptation strategies:" Monitoring/Forecasting capacity (EWS, vulnerability mapping system); Policy/regulatory reform; Capacity development; Sustainable forest management; Strengthening infrastructure; Supporting livelihoods; Mangrove reforestation; Coastal drainage and infrastructure; Irrigation system; Community-based adaptation; Erosion control; Soil water conservation; Microfinance Special programs for women; Livelihoods; Water storage; ICT and information dissemination.
Difficulty of measuring the indicator	Low
How to measure it	Number and type (in separate columns of monitoring plan)
Why measure it	Household livelihoods, which include how people have access to and use assets to make a living, are a key part of understanding project beneficiary characteristics. Greater understanding of these livelihoods will allow the project manager to measure and understand the impacts of climate change and climate change variability on targeted beneficiaries more effectively.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	• Secondary data on previous adaptation assets present or created at the targeted level. • Information of adaptation assets created during project interventions.
What is required to collect the data	Project document and reports

6.1.1. Number and type of adaptation assets (physical as well as knowledge) created in support of individual or community livelihood strategies

How to analyze and interpret the results

Compare previous and present numbers and types of adaptation assets created at targeted levels.

Strength and limitations of indicator

Creation or establishment of adaptation assets does not provide information on effectiveness (including sustainability) of those assets towards adaptation.

Outputs of measuring activities

Table including number and type of adaptation assets at present and compared to past

Example

	Livelihood asset/describe	Number of Adaptation assets	Adaptation strategy
Baseline	Financial capitals	1	Microfinance Special programmes for women
Target and end of project result	Financial capitals	2	Microfinance Special programmes for women and savings systems introduced

References, resources, and tools

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?
- Martin Prowse and Lucy Scott. 2008. Assets and Adaptation: An Emerging Debate. IDS Bulletin Volume 39 Number 4 September 2008 © Institute of Development Studies http://www.odi.org.uk/resources/download/2564.pdf
- Moser, C. and D. Satterthwaite. 2008. Towards pro-poor adaptation to climate change in the urban centres of low- and middle-income countries. IIED. Human Settlements Discussion Paper Series. Climate Change and Cities Discussion Paper 3. http://www.iied.org/pubs/pdfs/10564IIED.pdf

Where possible, definitions have been quoted word for word from the source.

6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods

Definitions	
Indicator	Percentage of targeted population with sustained climate-resilient livelihoods is a measure of how vulnerable people in targeted areas can adapt to climate change and impacts.
Terms	"Targeted population:" define the targeted population for project/programme. For example: total population of country, total population of community X, all women from community Y, etc. "Alternative livelihoods": "It is difficult to assess the impact of weather-related shocks on employment and therefore on household income. The impact depends primarily on the degree of destruction of income-generating assets and length of disruption of flows of goods and services. If alternative sources of employment/income are available neither within nor outside a disaster area, the frictional unemployment resulting from a climate shock could reduce income over the long term" (WB 2010).
Difficulty of measuring the indicator	Moderate
How to measure it	Household income by source of livelihood in project area (USD) prior and post project intervention
Why measure it	Household livelihood and sources of income, which include the way people use the assets at their disposal to make a living for themselves and their families, are a significant part of understanding beneficiaries' characteristics. An understanding of these livelihood and income sources will allow the project manager to measure and understand more effectively the impacts of climate change and climate change adaptation on local households, which then can be used to take specific management action (NOAA/National Ocean Service/IUCN WCPA Marine, WWF 2004).
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term. • Follow-up evaluation recommended for understanding long-term results.
How to collect the data	• Secondary data can determine main sources of income and income level prior to project intervention. Separate main sources of income in groups by sources of income and income level. Other projects in the area of intervention, census bureaus or other government offices may provide data. • Collect primary data through a survey (for a sample of households) over time.

6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods

What is required to collect the data

- Survey and sample
- Interviewer
- Secondary data from public offices, etc.

How to analyze and interpret the results

Compare percentages of targeted population with sustained climate-resilient livelihoods pre- and post-intervention through narrative and tables. If possible, break down by income level, main source of income, average number of people constituting the households, etc.

Strength and limitations of indicator

Household cooperation is required to obtain meaningful and sensitive data for this indicator.

Outputs of measuring activities

Narrative report explaining quantitative information

Example

"In Belize in 1998, Hurricane Mitch caused more than US$1.2 million in losses when it destroyed fishing grounds such as mangroves and coral reefs in the north and damaged equipment, keeping fishermen on land for months without any alternative livelihood option (Allison and others 2005). In Antigua and Barbuda in 1995, Hurricane Luis destroyed about 16 percent of the fishing fleet and damaged another 18 percent, causing a loss of roughly one-third of the fishing capacity and a 24 percent drop in annual revenues from fishing (Murray n.d.)" (In WB 2010).

	Household income in project area	Sources of income	Percentage of population
Baseline	US$1000/year	Fisheries	20%
	US$1050/year	Agriculture	50%
Target (and actual result at end of project)	US$1100/year	Fisheries, agriculture, and other alternative sources	

References, resources, and tools

- Davies, M., K. Oswald and T. Mitchell. 2009. Climate Change Adaptation, Disaster Risk Reduction and Social Protection. Promoting pro-poor growth: social protection. OECD.
- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?
- Verner, D. (Ed.) 2010. Reducing Poverty, Protecting Livelihoods, and Building

6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods

Assets in a Changing Climate Social Implications of Climate Change in Latin America and the Caribbean. The World Bank. Washington D.C.

Where possible, definitions have been quoted word for word from the source.

6.1.2. Income sources for households generated under climate change scenario

Definitions

Indicator	Income sources for households generated under climate change scenario is a measure of how targeted individual livelihoods (specifically income sources and income in general) are strengthened in relation to climate change impacts and variability.
Terms	"Income sources" are the sources of income (agribusinesses, fisheries, etc.) of households. Define targeted households. What are the targeted households for the project/programme?
Difficulty of measuring the indicator	Low (according to scale intervention and sources of incomes for household, and also of number of targeted households)
How to measure it	Income sources per household; description of income source and number of households.
Why measure it	Household livelihoods (including income sources), which include how people obtain their income and have access to and use assets to make a living, are a key part of understanding project beneficiary characteristics. Greater understanding of these livelihoods and specifically sources of income will allow the project manager to measure and understand the impacts of climate change and climate change variability on targeted beneficiaries more effectively.
When to measure it	• Projects up to 3 years in length: measure for baseline information and at end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	• Collect and review secondary socioeconomic data at the targeted level of project/programme. Data may be available from the census bureau or other census information institution or public offices and institutions with missions focussed on livelihood improvement in the targeted area.

6.1.2. Income sources for households generated under climate change scenario

State baseline and targeted indicators clearly:

- Total number of households in the area
- Number of targeted households
- Any information on pre-project sources of income in the area (or targeted households).
- Any information on pre-project present livelihood asset in the area.
- Targeted livelihood assets by project/programme
- Targeted income source in project area
- Etc.

Complete additional information collection and analysis, if useful. For example, by breaking down the number of households in different categories of analysis (income level, total number of persons integrating the household, desegregation by gender or vulnerable groups, etc.): number of households with X income sources and level of income with more secure access to livelihood assets or number of households with more than two family members with X sources of income. To do this, consider additional baseline information and adjustment in questionnaire.

What is required to collect the data

- Survey forms
- Sample or list of households to be surveyed
- Interviewers
- Secondary data (documents, study results, etc.)

How to analyze and interpret the results

Present results in narrative form accompanied by tables, charts, and figures to clarify and highlight points. Include quantitative information in tables and as needed.

Examples on how the data might be presented/analyzed (other indicators):

- Total number of households in area
- Previous common income sources in the area
- Household income in project area (USD)

Some authors defend that “diversified households are sufficiently flexible to change activities in their household organization, and they may use other sources of income to underwrite their responses to forecasts (Below et al.);” others argue that diversification of sources of incomes (depending on the source) may in some circumstances be detrimental to households. Analyze how climate change would affect income sources and if they need to be adapted or diversified. Based on this analysis, identify alternative income sources as needed.

Strength and limitations of indicator

Depends on number and extent of household, collection of information may be time consuming and therefore expensive. Usefulness of indicator depends on availability and cooperation of informants on sensitive issues.

Outputs of measuring activities

Table and narrative report; Venn diagrams.

6.1.2. Income sources for households generated under climate change scenario

Example

The project assisted in adapting and diversifying the income sources of X households. This is partially in line with the target established in the Log frame.

	Income source	Number of households
Baseline	Artisan fisheries	30
	Extraction of hydro biological resources	10
Target and end of project result	CC proofed sustainable artisan fisheries	60
	CC proofed sustainable and environmentally friendly farming of hydro biological resources	10
	CC proofed environmentally friendly agribusiness	20

References, resources, and tools

- Below, T., A. Artner, R. Siebert, and S. Sieber. 2010. Micro-level Practices to Adapt to Climate Change for African Small-scale Farmers. A Review of Selected Literature. Discussion Paper 00953. Environment and Production Technology Division. IFPRI.

- BOND, R. and N. MUKHERJEE. 2002. LIVELIHOOD ASSET STATUS TRACKING: AN IMPACT MONITORING TOOL? Journal of International Development. J. Int. Dev. 14, 805–815. http://portals.wi.wur.nl/files/docs/ppme/Livelihood_asset_tracking_a_tool_for_impact_monitoring.pdf

- DFID. 1999. SUSTAINABLE LIVELIHOODS GUIDANCE SHEETS. http://www.nssd.net/pdf/sectiont.pdf

- GEF 2006. The Role of Local Benefits in Global Environmental Programs. Washington, D.C.

- Hedger M., et al. Evaluation of Adaptation to Climate Change from a Development Perspective IN Van den Berg, R. D., and O. Feinstein (Eds.). 2009. Evaluating Climate Change and Development. World Bank Series on Development, Volume 8.

6.1.2. Income sources for households generated under climate change scenario

- IFAD. Understanding poor people and their livelihoods. http://www.ifad.org/english/institutions/guidance/2.pdf (Accessed September - November 2010).

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.

- IFAD Sustainable Livelihoods Framework. http://www.ifad.org/sla/framework/index.htm (Accessed September - November 2010).

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?

- Samaki Consultants. Ltd. 2003. Livelihood Assets Required for an East Africa FADs Programme. Final Technical Report. http://www.fmsp.org.uk/Documents/r8249/r8249_1.pdf

Where possible, definitions have been quoted word for word from the source.

EXPECTED RESULTS	INDICATORS
Outcome 7: Improved policies and regulations that promote and enforce resilience measures	7. Climate change priorities are integrated into national development strategy
Output 7: Improved integration of climate-resilience strategies into country development plans	7.1. No., type, and sector of policies introduced or adjusted to address climate change risks
	7.2. No. or targeted development strategies with incorporated climate change priorities enforced

7. Climate change priorities are integrated into national development strategy

Definitions

Indicator

Integrating adaptation priorities into a national or local development strategy is the measure of existence of a document to achieve goals and objectives at national and/or local levels and a group of potential and agreed adaptation options to be implemented.

Climate change "adaptation priorities" depend on:

- Targeted geographic area covered (local, regional, national, etc.). For example, at the national level NAPAs include climate change adaptation priorities.
- Sectors targeted: agriculture, health, energy, waste, forestry, etc.
- Socioeconomic aspects covered by policy: physical capital; improve livelihoods; social, natural or human capital.

It may be important first to establish area-driven criteria to evaluate and prioritize climate change adaptation measures. If priorities have not been defined at any level, or if priorities are included in the NAPAs, then discuss specific processes on how to translate them to local levels.

Terms

"Development strategy:" a document containing integrated objectives and usually developed to harmonize the various sectoral (economic, social, and environmental) policies and plans operating in a country/region/locality. National development strategies/regional development strategies, etc.

Difficulty of measuring the indicator

Moderate

How to measure it

Use scale 1-5 to summarize results from analysis of how well climate-change identified priorities are integrated into targeted development:

5: All (Fully integrated)
4: Most
3: Some
2: Most **not** integrated
1: None

Briefly describe the challenges and/or opportunities supporting any of the potential

7. Climate change priorities are integrated into national development strategy

responses above.

Why measure it	Understanding the integration of climate change priorities into development strategies can help determine the level of commitment at local/municipalities, regional, and national scales, as well as the effectiveness of adaptation responses.
When to measure it	• Projects up to three years in length: measure for baseline information and end of project. • Projects longer than 3 years: as above, but also at mid-term.
How to collect the data	• Mention explicitly climate change priorities and development strategy(ies) that project/programme would address. • Collect data initially through secondary data from development strategies by sector, level, etc. • Compile and review all relevant policy documents (identifying sectors and level) and targeted strategy.
What is required to collect the data	• Reviewer, computer, or notebook and pencil • Copies of targeted development strategy(ies) documents • Secondary data on targeted development strategy(ies)
How to analyze and interpret the results	Present results in narrative accompanied by tables, charts, and figures to clarify and highlight points. Include quantitative information in tables and as needed. Examples on how the data might be presented/analyzed: • Total vs. targeted number of climate change priorities identified • Total vs. number of development priorities identified (including level or geographic coverage and sector of strategy) • Percentage of climate change priorities considered/targeted to be included in development plan(s) • Percentage of development strategies to target
Strength and limitations of indicator	Integrating climate change priorities in development strategies does not necessarily address their actual implementation. Consider other aspects like regulation and enforcement to fully understand the impact of policies (see indicator below).
Outputs of measuring activities	Tabulation and narrative report, which contains number of strategies, sector, and level, as well as type of climate change priorities included.

7. Climate change priorities are integrated into national development strategy	
Example	Niue has recognized the threat of climate change and placed adaptation among its top priorities in its National Climate Change Policy. This Policy outlined key vulnerability areas and defined the need to establish and implement action plans accordingly; only the water sector has been systematically addressed. Currently there is no systematic assessment and action plan for food security related sectors; current agricultural, forestry, and fishery practices do not integrate climate risk and resilience. Unsustainable land use and agricultural practices have been increasing the vulnerability of communities to climate change. This project will represent the development and implementation of an action plan targeted to reduce shorter- and longer-term climate risks that jeopardize food security and related development objectives. **Baseline:** Current services of the Meteorological Service do not support planning and management decisions in food security sectors, as noted above in the case of a drought in 2009. Project resources will support the revision of Agriculture, Forestry, and Fishery sector policies and plans, for full integration of climate risk and resilience, through targeted training of government officials. A number of policy documents has highlighted the need for enhanced monitoring capacity of natural resources, but they await implementation (like the Coastal Management Policy); this project will support building such capacity to track climate-induced impacts on vital livelihood resources.
References, resources, and tools	- Change in Asia and the Pacific 2010 http://www.adb.org/documents/brochures/climate-change-priorities/climate-change-priorities.pdf - IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook. - NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing? Where possible, definitions have been quoted word for word from the source.

7.1. Number, type, and sector of policies introduced or adjusted to address climate change risks

Definitions

Indicator

This assesses the extent to which project activities have contributed to policies to address/incorporate climate change risks in the different sectors. Policies that introduce or adjust climate change risks is one measure of how enabled countries/sectors can adapt to climate change.

Terms

"Policy:" All encompassing definitions include: "policy is a settled course of action to be followed by a government body or institution" (Patton and Sawicki 1993). Or "a policy is typically described as a principle or rule to guide decisions and achieve rational outcome(s). The term is not normally used to denote what is actually done, this is normally referred to as either procedure or protocol. Whereas a policy will contain the 'what' and the 'why', procedures or protocols contain the 'what', the 'how', the 'where', and the 'when' (Wikipedia).

The term may apply to policies from, or of, government, private sector organizations and groups, and individuals.

"Type:" Company Policy; Communications and Information Policy; Defence policy; Domestic policy; Economic policy; Education policy; Energy policy; Environmental Policy; Foreign policy; Health policy; Housing policy; Human resource policies; Information policy; Macroeconomic policy; Monetary policy; Population policy.

Privacy policy; Public policy in law; Science policy; Social policy; Transportation policy; Urban policy; Water policy; Other policy (specify).

"Sector:" health and social welfare, infrastructure, production, planning, agriculture and environment, defence.

"Address/incorporate effectively:" would the set/modified policy achieve its objectives to address/incorporate climate change risks (increase adaptive capacity or achieve and enhance level of protection).

"Climate-change risks:" "Risk": the probability of climate change (including variability) negatively impacting a country, community, or household as the result of the interaction between a hazard and conditions of vulnerability (AF).

Difficulty of measuring the indicator

Low (specifically on number and sector aspects).

7.1. Number, type, and sector of policies introduced or adjusted to address climate change risks	
How to measure it	Number/Sector
Qualitative	Effectiveness: are policies set/modified to achieve climate change risks, increase adaptive capacity, or achieve an enhanced level of protection? Link measurement to an analysis of policy and adaptation scenarios. (See Yin et al IN Leary et al. 2008).
Why measure it	Typically, the establishment of adaptation measures at all sectors and scales requires the introduction of policies. This indicator ensures these policies support adaptation measures. • Projects up to three years in length; measure for baseline information and end of project. • Projects longer than 3 years; as above, but also at mid-term.
When to measure it	Mention explicitly policies that would be developed or modified in the project/programme proposal.
How to collect the data	• Collect data initially through secondary data from official regulations and policy-related documents, and compile relevant policy development strategies by sector, level, etc. • Review document to compile and register all relevant (identifying sectors and level) and targeted strategy.
What is required to collect the data	• Analyst • Interviewer • Survey: expert judgement, etc. • Secondary data on policy(ies) and policy analysis • Notebook and pen and/or computer
How to analyze and interpret the results	Present results in narrative form accompanied by tables, charts, and figures to clarify and highlight points. Include quantitative information in tables and as needed. Examples on how the data might be presented/analyzed: • Calculate total number if more than one policy/sector/level is addressed. • Count number of sectors for which policies are developed or modified. • Group perception on the level of effectiveness by sector/type of policy/level.
Strength and limitations of indicator	Developed or adjusted policies do not guarantee adoption or implementation. Consider other aspects like regulation and enforcement to fully understand impact of policies.
Outputs of measuring activities	Tabulation and narrative report, which contains number of policies, sector, and perception of effectiveness (which should also include a short analysis of scenarios and risks)

7.1. Number, type, and sector of policies introduced or adjusted to address climate change risks

Example from the field

Number of policies	Description of policy	Sector	Effectiveness for addressing climate risk (results of analysis).
1	Develop new crop types and enhance seed banks.	Agriculture	Describe.
1	Avoid monoculture and encourage farmers to plant a variety of heat- and drought-resistant crops.	Agriculture	Describe.

References, resources and tools

- Burton, I., E. Malone, and S. Hug. 2004. Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures. Lim, B. and E. Spanger-Siegfried and (Eds.). UNDP. Cambridge University Press.
- Burton, I., E. Diringer and J. Smith. 2006. Adaptation to Climate Change: International Policy Options. Prepared for the Pew Center on Global Climate Change.
- Hedger M., et al. Evaluation of Adaptation to Climate Change from a Development Perspective IN Van den Berg, R. D., and O. Feinstein (Eds.). 2009. Evaluating Climate Change and Development. World Bank Series on Development, Volume 8.
- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.
- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. 2004. How is your MPA doing?
- Patton, C.V. and Sawicki, D.S. 1993. Basic Methods of Policy Analysis and Planning. Englewood Cliffs, NJ: Prentice-Hall.
- Policy definition: http://en.wikipedia.org/wiki/Policy (Accessed September - November 2010).

7.1. Number, type, and sector of policies introduced or adjusted to address climate change risks

- Smith, J.B. and S. S. Lenhart. 1996. Climate change adaptation policy options. Climate Research. Vol. 6: 193-201, 1996.

- Yin, Y., Z. Xu, and A. Long. 2008. Evaluation of Adaptation Options for The Heihe River Basin of China. Leary, N., J. Adejuwon, V. Barros, I. Burton, J. Kulkarni, and R. Lasco (Eds.). 2008. Climate Change Adaptation. Earthscan. UK. 381pp. (Includes description of adaptation evolution tools for policy analysis).

Where possible, definitions have been quoted word for word from the source.

7.2. No. or targeted development strategies with incorporated climate change priorities enforced

Definitions

Indicator

This assesses the extent to which project interventions have helped enforce strategies to address/incorporate climate change risks in the different sectors effectively. Existence and adequacy of strategies that introduce or adjust climate change risks is a measure of readiness of country/sector/locality to achieve climate change adaptation. Consider a regulation or legislation as enforced when it is approved (by parliament or councils, etc.) and conditions are in place for implementation.

Terms

"Policy:" All encompassing definitions include: "policy is a settled course of action to be followed by a government body or institution" (Patton and Sawicki 1993). Or "a policy is typically described as a principle or rule to guide decisions and achieve rational outcome(s). The term is not normally used to denote what is actually done, this is normally referred to as either procedure or protocol. Whereas a policy will contain the 'what' and the 'why', procedures or protocols contain the 'what', the 'how', the 'where', and the 'when'. Traditional policy or law may also serve to address/incorporate climate change risks" (Wikipedia).

The term may apply to policies from, or of, government, private sector organizations and groups, and individuals.

"Development strategy:" a document containing integrated objectives and usually developed to harmonize the various sectoral (economic, social, and environmental) policies and plans operating in a country/region/locality. National development strategies/regional development strategies, etc.

"Enforced:" Consider a regulation or legislation as enforced when it is approved (by parliament or councils, etc.) and conditions are in place for implementation. It includes the existence of policing measures, incentives, and punishments to direct human behaviour.

"Climate change risks:" "Risk": the probability of climate change (including variability) negatively impacting a country, community, or household as the result of the interaction between a hazard and conditions of vulnerability (AF).

Difficulty of measuring the indicator

Low (specifically on number and sector aspects)
Moderate to high (on clarifying perceived effectiveness)

How to measure it

Number; Effectiveness (see previous indicator) through enforcement level.

Effectiveness: are strategies enforced to address climate change risks, increase adaptive capacity, or achieve an enhanced level of protection? Analyze strategies and adaptation scenarios to understand effectiveness (see previous indicator).

7.2. No. or targeted development strategies with incorporated climate change priorities enforced

	In addition, summarize the enforcement level of targeted development strategy: (Scale 1-5): 5: Fully enforced (All elements implemented) 4: Enforced (Most elements implemented) 3: Partially enforced (Some elements implemented) 2: Partially not enforced (Most elements not implemented) 1: Not enforced (No elements implemented) Briefly describe the challenges and/or opportunities supporting any of the potential responses above.
Why measure it	Understanding the number of elements of development strategy enforced to address/incorporate climate change risks effectively (increase adaptive capacity or achieve an enhanced level of protection) makes it possible to determine and ensure that specific regulations support the policy(ies) and are being successfully implemented.
When to measure it	Depends on length of project. Usually for baseline/context information and end of project. Enforcement of strategies may take longer than project or intervention implementation. Mid-term results may hint at ways to enhance enforcement.
How to collect the data	• Mention explicitly strategies that would be enforced through project interventions in the project/programme proposal. • Collect data first through secondary sources (official regulations and other strategies related documents, compilation of relevant strategies). • Compile and review all relevant policy documents (identifying sectors and level) and targeted strategy. • Analyze how policy(ies) address climate variability effectively. Consider factors in determining the success of climate change adaptation: achieving objectives of policies, flexibility, equity, efficiency, and sustainability (see Hedger et al 2009.)
What is required to collect the data	• Notebook and pen, and/or computer • Policy analyst • Project reports and documents • Relevant secondary data for policy/strategy diagnosis • Independent policy/strategy analyst
How to analyze and interpret the results	Present results in narrative accompanied by tables, charts, and figures to clarify and highlight points. Include quantitative information in tables and as needed. Examples on how the data might be presented/analyzed: • Total number could be calculated if more than one policy/strategy is addressed. • Perception on the level of effectiveness by relevant stakeholders could be sought and grouped.

7.2. No. or targeted development strategies with incorporated climate change priorities enforced

Strength and limitations of indicator

Subjectivity of analyst could be a limitation. It's important to understand legislative process and be familiar with policy/development strategy analyses.

Outputs of measuring activities

Tabulation and narrative report, which contains number of policies, sector, and perception of effectiveness (and which should include a short analysis of scenarios and risks)

Example from the field

Project intervention contributed to enforcement of the Y strategy and partial enforcement of the X strategy. No enforcement of Z strategy was possible due to… (explain/describe). Or overall, partial enforcement of the M development strategy was possible.

Number of policies	Description of policy/ strategy	Sector	Effectiveness for addressing climate risk (results of analysis)	Enforcement/ Describe
1	Develop new crop types and enhance seed banks	Agriculture	Describe	3: Partially enforced
1	Protected and enhanced migration corridors	Ecosystem/ Environment	Describe	4: Enforced
1	Adopt contingency planning for drought	Water	Describe	1: Not enforced

References, resources, and tools

- Burton, I., E. Malone, and S. Hug. 2004. Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures. Lim, B. and E. Spanger-Siegfried and (Eds.). UNDP. Cambridge University Press.
- Burton, I., E. Diringer and J. Smith. 2006. Adaptation to Climate Change: International Policy Options. Prepared for the Pew Center on Global Climate Change.
- Change in Asia and the Pacific 2010 http://www.adb.org/documents/brochures/climate-change-priorities/climate-change-priorities.pdf

7.2. No. or targeted development strategies with incorporated climate change priorities enforced

- Hedger M., et al. Evaluation of Adaptation to Climate Change from a Development Perspective IN Van den Berg, R. D., and O. Feinstein (Eds.). 2009. Evaluating Climate Change and Development. World Bank Series on Development, Volume 8.

- IFAD. 2007. Results and Impact Management System: RIMS First and Second Level Results Handbook.

- NOAA/National Ocean Service/IUCN WCPA Marine, WWF. How is your MPA doing?

- Patton, C.V. and Sawicki, D.S. 1993. Basic Methods of Policy Analysis and Planning. Englewood Cliffs, NJ: Prentice-Hall.

- Policy definition: http://en.wikipedia.org/wiki/Policy (Accessed September - November 2010).

- Smith, J.B. and S. S. Lenhart. 1996. Climate change adaptation policy options. Climate Research. Vol. 6: 193-201, 1996.

- Yin, Y., Z. Xu, and A. Long. 2008. Evaluation of Adaptation Options for The Heihe River Basin of China. Leary, N., J. Adejuwon, V. Barros, I. Burton, J. Kulkarni, and R. Lasco (Eds.). 2008. Climate Change Adaptation. Earthscan. UK. 381pp. (Includes description of adaptation evolution tools for policy analysis).

Where possible, definitions have been quoted word for word from the source.