



Mainstreaming Adaptation to Climate Change in Agriculture and Natural Resources Management Projects

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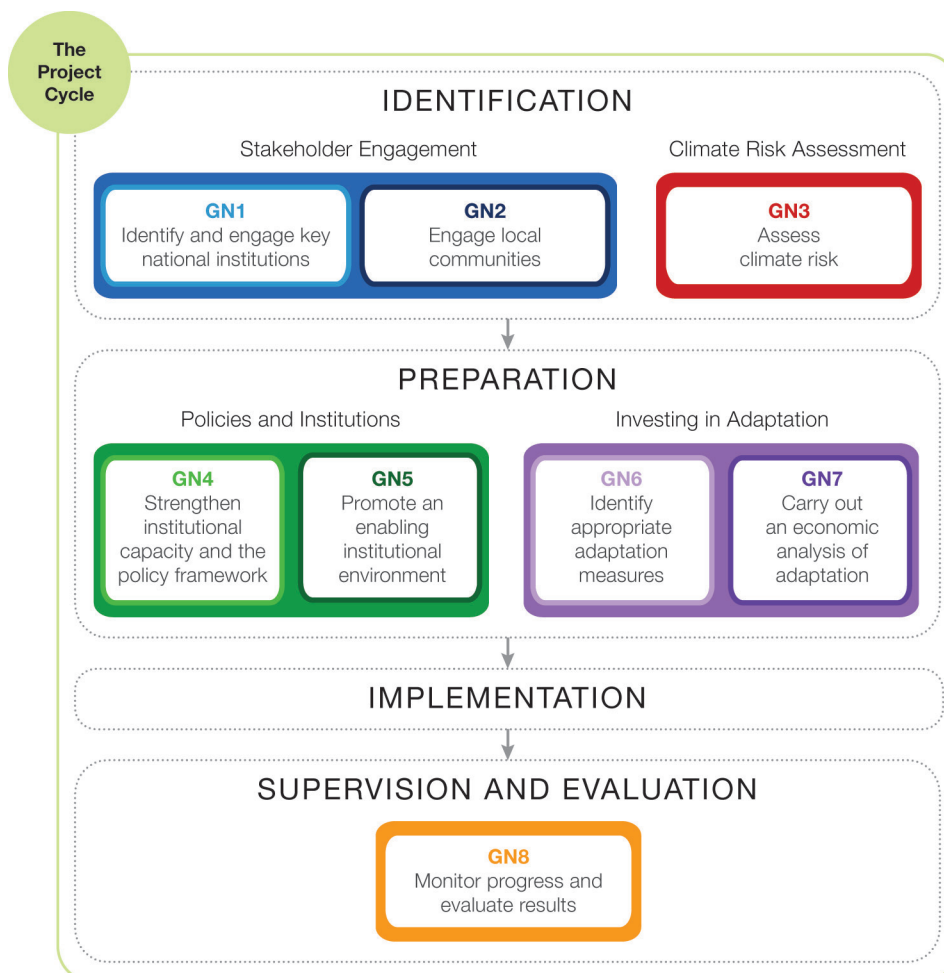
Guidance Notes



Guidance Notes

Mainstreaming Adaptation to Climate Change in Agriculture and Natural Resources Management Projects

This series presents eight guidance notes (GN1 - GN8) that provide lessons learned, best practices, recommendations, and useful resources for integrating climate risk management and adaptation to climate change in development projects, with a focus on the agriculture and natural resources management sectors. They are organized around a typical project cycle, starting from project identification, followed by project preparation, implementation, monitoring and evaluation. Each note focuses on specific technical, institutional, economic, or social aspects of adaptation.



Monitoring and Evaluation of Adaptation Activities



The objective of this guidance note is to provide clarification of issues relating to the monitoring and evaluation (M&E) of development projects regarding adaptation to climate change. Specifically, this note will provide guidance on issues related to the: (a) identification of key aspects and issues for successful M&E in agriculture and natural resource management (NRM) adaptation projects; (b) selection of specific M&E indicators relevant to adaptation projects; and (c) adoption of suggested best practices for establishing a good M&E system within adaptation.

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A. Key aspects and issues for successful M&E in adaptation projects

What is different about M&E for adaptation?

*Adaptation** to climate change in the agriculture and NRM sectors (Ag/NRM) shares many of the challenges development projects face in rural areas, such as: low level of capacity and/or financial resources for implementing sound M&E systems; lack of good baseline data and historical trends; involvement of multiple actors at multiple levels (farmers, farmer organizations, markets, public and private Ag/NRM sector actors, local institutions, etc.); and the difficulty of isolating the performance of specific project activities (in this case adaptation activities) within a broader rural development project, especially when the project's results mainly depend on external factors (i.e., crop prices).

However, adaptation also creates new challenges for identifying suitable M&E indicators, as well as for the design of an effective M&E system within adaptation projects. Added complexity is due, in part, to the following:

- Uncertainty surrounding climate change impacts—including the frequency and intensity of extreme events—and the long-term repercussions of climate change effects can make assessing the impacts of adaptation difficult.
- Indirect effects of climate change impacts, including health issues, social turmoil and conflicts, migration, etc., although not considered directly under a typical Ag/NRM development project, can considerably affect the project's impact and, hence, need to be taken into account when undertaking an evaluation.
- For projects designed to reduce *vulnerability* to infrequent extreme events, the project or activity can be evaluated only if the foreseen event occurs before evaluation of the project. If such an event does not occur, it may be difficult to determine if the project or activity was properly implemented. The same is true for projects addressing long-term risks from climate change, when *impact evaluation* can be even more difficult as long-term climatic changes may not be evident when the time comes to evaluate the project.

There are no 'silver bullets' for overcoming these additional challenges. However, this Guidance Note aims to suggest possible solutions to these and other issues in the sections that follow.

* For words in italics, please see Glossary for definition.

B. Selection of specific M&E indicators for adaptation

The design of any M&E system and identification of suitable indicators should be derived from the project development goals and the design of a logical framework, or logframe, which organizes project components into inputs, activities, outputs, outcomes and impacts (see Annex 1 for more information on logframes and a description of different indicator levels and types). The design of the logframe helps provide a full view of the project development process, planning and achievement of outcomes and objectives.

Selecting development objectives and project goals for mainstreaming adaptation

Within Ag/NRM operations, projects or project components addressing adaptation to climate change measures should help achieve two important development objectives:

- Increased *resiliency* of communities with respect to *climate variability* and its effects on agriculture and natural resources.
- Increased *adaptive capacity* of natural and managed systems under current and predicted *climate variability* by enhancing and conserving environmental services.

These development objectives can be translated into a set of more specific project goals reflecting various aspects of adaptation that may each require different indicators and evaluation methods. For example, according to the Adaptation Policy Framework (APF), established by UNDP to assist developing countries in implementing adaptation initiatives, adaptation project goals can include:

- increased robustness of infrastructure design and long-term investment development;
- increased *resilience* of vulnerable managed systems, such as flood-prone coastal agricultural areas;
- enhanced adaptability of vulnerable natural systems (e.g., through reduction of non-climatic pressures, such as increased deforestation and land degradation);
- reversal of trends that increase *vulnerability* (e.g., increased irrigation in areas of almost depleted or little groundwater recharge, which can be interpreted as maladaptation); and
- improved societal awareness and preparedness (capacity to understand and react to climate change).

Within a logframe, multiple categories of indicators (output, outcome and impact) are required to track project implementation in order to assess achievement of the adaptation objectives outlined above. In particular, the project's success is mainly measured through outcome and impact indicators, discussed below.

Selecting outcome and impact indicators

A robust response to increasing climate risk generally calls for a combination of a number of individual adaptation options (at the same or at different institutional levels and scales), which should reinforce each other. The decision-making process that leads to the choice and implementation of a particular set of desirable adaptation measures is, per se, an important outcome of the project that should be monitored and evaluated as such. On the other hand, an adaptation process is successful only if it delivers measurable improvement in the adaptive capacity of natural and managed systems, and increased resiliency of communities to climatic shocks (see the section on selecting development objectives).

Hence, two main categories of indicators can be identified that should always be included in the M&E of development projects that mainstream adaptation to climate change, namely "process indicators" and "long-term effect indicators". Using the logframe terminology, the first set of indicators is generally considered an outcome indicator, while the second set is better included among impact indicators. Distinguishing between these two types of indicators (outcome and impact) would be an important step towards improving the quality-at-entry of World Bank projects that mainstream climate risk management and adaptation. In fact, project logframes have, thus far, often combined outcome and impact indicators (see Annex 2 for a proposed classification of outcome and impact indicators for the Caribbean Mainstreaming Adaptation to Climate Change Project).

1. Outcome indicators

Outcome indicators are mainly "process indicators", i.e., they measure the extent to which activities financed by the project contribute to the mainstreaming of climate risk management and adaptation within national and local policies and institutions.

In order to be meaningful and measurable, it is recommended that outcome indicators be limited to a minimum set of "aggregated" indicators. Such indicators should be based on a bigger set of indicators closely linked to concrete adaptation activities specified in the logframe. To this end, the use of the logframe with its 'result chain' can be very helpful.

The result chain shows the plausible, causal relationships among its elements, while also clarifying the M&E feedback loops that planners need to be aware of. The basic rationale is to design the project beginning with intended impacts and outcomes and, consequently, to

identify the outputs and inputs required to achieve them. Tracking performance goes the other way around, i.e., from inputs to outcomes and impacts. Information on the project's performance should be fed back to provide advice on how to make necessary adjustments and improvements to inputs (activities), so as to achieve better results. In this way, the contribution of project activities to the establishment of an efficient adaptation decision-making process becomes clearer, and outcome indicators are likely to be less fuzzy and more measurable within the project lifetime.

For example, the outcome indicator 'changes in awareness among farmers of the implications and risks from climate change' can be better assessed and interpreted by establishing strong links to the output indicators of each related adaptation activity (e.g., community collection of local climate data, use of extension services, changes in farming practices, use of improved climate forecasts, diversification of farm incomes, etc.). See Table 1 below for some examples.

Table 1: Activity/inputs and related output, outcome and impact indicators

Activity/Input	Output Indicators	Outcome Indicators	Impact Indicators
Providing equipment and training for community collection of local climate data. Providing equipment and community training to improve access to weather data and climate projections.	Number of communities that have created and maintained a local weather station. Number of radio stations broadcasting local weather forecasts. Number of farmers with access to climate forecast sources.	Percent of farmers with increased trust in weather data and climate projections in making farming decisions.	Diminished variability in yields over a multi-year period.
Improving extension services to build capacity on adaptation practices to current and projected local climate variability.	Number of workshops on new technology/best practices to increase farm resilience. Number of farmers trained in climate change adaptation and management of climate risks.	Number of farmers adopting new technologies/improved farming practices to better cope with climate variability and extremes.	Diminished income variability over a multi-year period.

What are some examples of outcome indicators for adaptation?

In view of most adaptation objectives, there is often a need to develop and establish outcome indicators to track, among other things:

- capacity to identify current climate risks and assess likely future climatic trends at the regional scale;
- inclusion of acquired knowledge about current and future climate risks in decision making at different institutional levels;
- identification of institutional barriers preventing the formulation of adaptation strategies (such as lack of synergies, capacity and networks) and of remedies for implementation and enforcement of adaptation policies;
- approval of adaptation-friendly policies at the national level (i.e., economic incentives such as insurance, subsidies or low interest loans, capacity-building initiatives, revised extension services, rural infrastructure, sustainable land management and tenure, etc.); and
- creation of a wide and strong academic, private sector, NGO, public sector, civil society and government partnership for developing, implementing and upscaling adaptation strategies for agriculture and NRM.

A list of additional possible outcome indicators from different subsectors of Ag/NRM is presented in Annex 3.

2. Impact indicators

Impact indicators should be able to measure the long-term effects of project outcomes, as well as capture the change in *adaptive capacity* and *resilience* to climate shocks of both natural systems and human communities. The assessment of such a change with respect to the baseline is called *impact evaluation*, which provides a powerful instrument to determine ‘what works and what does not work’ with respect to projects and, thus, constitutes a fundamental means to learn about effective adaptation interventions. At the same time, particularly when conducted using comparable and consistent methodologies across countries, such an evaluation can provide the necessary benchmarks for future project design and monitoring (World Bank Impact Evaluation Manual 2000).

Thanks to the adaptation process facilitated by the project, increased *resilience* and *adaptive capacity* should be achieved in relation to:

- **Current *climate variability*.** *Impact evaluation* can be carried out during the advanced stages (ongoing evaluation) of project implementation and/or a few years after completion of the project.
- **Long-term climatic trends.** *Impact evaluation* should ideally be carried out at regular intervals for many years after project completion (see Annex 4 on why conduct an impact evaluation?)

What are some examples of impact indicators for adaptation?

With respect to human communities, increased resiliency to *climate variability* and extremes should translate into positive changes in the well-being of individuals that can be attributed to the project, program or policy. Hence, it is always very important to include well-being indicators among impact indicators of adaptation projects or project components (See Annex 4 for a relevant excerpt of the World Bank *Impact Evaluation* Manual). Moreover, sector-specific impact indicators should be included (see Annex 3 for possible indicators representing different subsectors of Ag/NRM).

Several ongoing projects within the World Bank can offer examples of additional M&E indicators (please note that, in many cases, the following projects have logframes that combine outcome and impact. For clarification purposes, we identify them separately in Annex 3).

- The Caribbean Mainstreaming Adaptation to Climate Change Project is not focused on Ag/NRM issues, but has a strong focus on adaptation measures needed to create an enabling environment for different sector-specific measures (see Annex 3 for a selection of outcome and impact indicators and further reading for a full citation).
- The China - Mainstreaming Adaptation to Climate Change into Water Resources and Rural Development Project provides a selection of possible outcome indicators in the Results Framework (Annex 5).

Please refer to Annex 6 for M&E indicators monitoring environmental, social and economic effectiveness, which are not organized according to the logframe.

C. Best practices for establishing an M&E system for adaptation

1. Collection of baseline data

Project performance is assessed by comparing data collected at the initial stages of project preparation (i.e., prior to project implementation) with the value of the indicators after implementation. Collection of baseline data allows the project evaluator to:

- compare the situation after the project (with adaptation) with the initial characterization (initial conditions prior to project implementation); or
- compare the situation after the project with a baseline (control site) that describes how the system would have performed in the absence of each implemented adaptation action (non-adaptation scenario or “business as usual”).

This exercise is extremely useful in order to provide feedback with respect to the efficacy of adaptive measures promoted by the project, and to provide information about the desirability of scaling up or modifying specific activities. Indeed, many recent projects that aim to mainstream adaptation emphasize ‘learning-by-doing’ and sharing lessons learned as central elements of the M&E framework, which can be newly defined as monitoring, learning and evaluation (ML&E).

Not many recent World Bank Ag/NRM adaptation projects have applied a standardized evaluation of project performance based on comparing baseline data with the actual value of the same indicators during and/or after implementation. Among the projects which did, the Kenya Adaptation to Climate Change in Arid Lands (KACCAL) established a baseline survey to be monitored annually as a standard monitoring procedure (Annex 7). Without such arrangements, project evaluation often becomes complex and does not meet requirements for rigorous *impact evaluation*. The importance of M&E cannot be overemphasized, particularly for innovative approaches, which is often the case for climate risk management and adaptation. Special care should be devoted to collecting baseline data and setting up a good M&E system.

Which types of data should be collected?

The choice of the baseline and related output and impact indicators is clearly dependent on the types of data available in a country, as well as on what can be feasibly monitored given different project scales, and resource and capacity constraints. The process of selecting indicators should begin with an analysis of what is available and feasible. Indicators based on data not yet available should only be included in the monitoring system if setting up a mechanism to collect and analyze them is realistic (refer to further reading on selecting indicators and to Annex 8 for guidelines on what constitutes good indicators and how to select them for World Bank supported operations).

Ideally, projects aimed at mainstreaming adaptation should include the following categories of data to be assessed, before and after project implementation:

- Climate data (temperature, seasonal precipitation, start and length of the rainy season, etc.)
- Coping strategies
- Socioeconomic data (including measures of “well-being,” demographics, access to basic services, migration, etc.)
- Ecosystem services, including productivity of natural resources (i.e., agricultural yields, water salinity, coastal erosion, etc.)
- Data on institutional and policy processes (i.e., number of existing national agriculture policies that incorporate adaptation issues, level of enforcement of policy on land and water rights, level of knowledge regarding climate change within local institutions, etc.)

Table 2 below illustrates the main associated issues and opportunities for each of these data categories.

Table 2: Types of data and associated issues and options

Type of data	Issues and Options
<p>Climate data</p>	<p>Climate during a project’s lifetime may affect project performance either positively or negatively. Thus, climate data during implementation must be considered in selecting the best indicators for project performance. For example, good rainy seasons during the lifetime of the project may prohibit testing measures directed toward adaptation to drought. In this case, agricultural yield may not be a good performance indicator for the project. Other ways to evaluate the project should be found, i.e., ease of implementation.</p> <p>The use of some proxy indicators may be useful as well, i.e., measuring how well non-climate dependent factors of agriculture and NRM have been improved by the project. These factors are important since they measure vulnerability to disruptions caused by climate events. For example, does the improvement of non-climate related factors reduce vulnerability to agronomic (management induced) or meteorological drought? Is soil conservation being promoted?</p>
	<p>The process of collecting climate data can help local communities revise their climatic expectations and integrate traditional knowledge, and, hence, constitute an important measure for building adaptive capacity by themselves.</p>
	<p>Correlations between climate data and other types of data can help refine projections of climate change impacts at the local level (i.e., on agricultural productivity, coastal erosion, migration, etc.).</p>
<p>Socioeconomic data</p>	<p>It is important to find a suitable set of variables to evaluate the “well-being” of communities before and after the project. These should go beyond annual income. For example, “perception” or “hope” indicators could measure the degree of confidence that a drought will not disrupt the lives of local people. Additional examples include indicators measuring the strengthening of collective action and social networks.</p>
	<p>An attempt should be made, when possible, to collect data on possible local effects of climate change, which are not directly targeted by the project. Examples include health issues, social turmoil and conflict, internal and international migration, etc.</p>

Type of data	Issues and Options
Ecosystem services	Proxy indicators might be necessary when the measurement of an actual climate impact is difficult. For example, the productivity of mangroves can act as a proxy indicator for the strength of beach erosion defense against storm surges, as the resistance of storms is not quantifiable in specific terms.
Institutional data	Simple process indicators (e.g., new water policy including adaptation measures, establishment of interdepartmental committees, etc.) and more complex outcome indicators (e.g., measuring enforcement of policy on land and water rights) should be included.
Coping strategies	Changes in the set of coping strategies available to local communities are perhaps the most representative changes in both adaptive behavior and capacity. Examples of coping strategies include: changes in crop selection within cropping seasons; changes in planting dates; income diversification; distress selling of lands, crops and livestock; share cropping the land; and food storage per family.

What to do if a baseline is not available before project implementation?

Many projects do not provide enough time during preparation for collecting baselines and start implementation without baseline data at hand. For example, the AP-DAI collected baseline data after the start of new pilot projects (see example of baseline data in the AP-DAI baseline report in the Resources section; more specifically, see Chapter 1 and Annex 3 of this document for further discussion on survey formats).

In the complete absence of a baseline, the project team can consider these alternatives:

- At project completion, compare the value of indicators inside the project area (with adaptation) with those outside the project area (without adaptation) using areas that were very similar at the time the project began. For example, the KACCAL project will compare results of semi-arid land management in districts with project interventions to conditions in districts without project implementation (control).
- Collect the most critical data right after the implementation begins (e.g., production during the first harvesting season after project implementation) if the adaptation activity is not yet fully in place.
- Look for existing local and national agricultural statistics to assess current

vulnerabilities to climate risks. In some countries, authorities regularly collect data on farm and off-farm income sources, production data, farming practices, migration, etc.

- Look for other existing sources of data, such as:
 - ✓ Data collected by other projects (including NGO projects).
 - ✓ Training records—village or community and extension center records on participation in recent training events, evaluations on training and field events focusing on climate change awareness and coping strategies, learning events on new crop varieties, etc.
 - ✓ Data on input sales (e.g., on specific crop varieties, fertilizers, pesticides, irrigation material) from government and private sector records.

(Adapted from “Monitoring and Evaluation for World Bank Agricultural Research and Extension Projects: A Good Practice Note”, Box 3.6)

2. Approaches for monitoring and impact evaluation of adaptation projects

What are suitable approaches to M&E for projects that are mainstreaming adaptation?

Several suitable approaches exist for establishing an M&E system. Choosing the right one will always depend on the specificity of the project and its objectives. A comprehensive list of commonly used methods for M&E of Ag/NRM projects can be found in M&E for World Bank Agricultural Research and Extension Projects: A Good Practice Note (see further reading). Among these methods, Ag/NRM projects that mainstream adaptation may be best monitored and evaluated using a dynamic and process-oriented approach, or, more simply, a process approach. Such an approach implies enabling adaptation at all project development stages by continuous monitoring and overcoming of obstacles. It allows project managers to identify (diagnose) and adopt (implement) adaptation options in a dynamic way due to the continuous feedback and correction cycles that this approach entails.

A process approach builds on participatory approaches, such as participatory M&E, which actively involves key stakeholders in the M&E process so they can learn about and affect the process and impact of a development project. Several projects with adaptation components, including KACCAL and AP-DAI, intend to set up a participatory M&E system that promotes self-evaluation of performance and the institutionalization of M&E in the region/community. See Annex 10 for more information on participatory approaches. Participatory approaches also

build on “learning-by-doing” processes. This dynamic process allows effective and active M&E of an adaptation project’s performance with respect to its objectives, so as to establish a solid background for upscaling pilot activities. This process allows for lessons learned to be actively incorporated in the M&E framework (or an ML&E framework as mentioned earlier) as a new step for adopting and mainstreaming effective adaptation interventions.

When should impact evaluations of adaptation projects be undertaken?

Because undertaking an *impact evaluation* is voluntary, the following questions may help guide the decision process on when to conduct such an evaluation. Suggested questions include the following (adapted from World Bank Impact Evaluation guidance, see Annex 4):

- Is the project considered to be of strategic relevance and effective for increasing resiliency and adaptive capacity within the projected Ag/NRM initiative?
- Is the intervention testing innovative approaches to adapt to climate change (e.g., introduction of new crop varieties resistant to drought, crop insurance for rural communities in arid lands, promotion of a “mindshift” among communities, promotion of mixed livestock-farming systems, etc.)?
- Is there sufficient evidence that this type of adaptation intervention works well in a number of different contexts, so that upscaling might be considered (e.g., success stories in different countries regarding national adaptation strategies to floods)?

Recommendations for retrofitting lessons learned from impact evaluation

- **Promoting impact evaluations** of Ag/NRM adaptation projects within the World Bank. In the past, most Bank impact evaluations in Ag/NRM and other sectors have been constrained by the lack of data and the technical challenges of developing a counterfactual. However, over the past few years, significant improvements in both these areas have made impact evaluations easier to implement and promote on a systematic basis. Rural micro-level data are more widely available and a range of evaluation techniques have been developed to construct the counterfactual, from randomized experiments to quasi-experimental techniques. The new challenge is to apply the lessons learned in Ag/NRM and to identify additional gaps and needs for mainstreaming adaptation to current and future climate risks.
- **Using impact evaluation at the project and sector level** to evaluate past Country Assistance Strategies (CASs) and inform new ones. As the Bank has

moved to results-based CASs, thought should be given as to how the results of impact evaluation at the project level can provide evidence for CAS results and help inform CAS priorities in the future regarding adaptation to climate change in Ag/NRM.

3. M&E tools for data collection of adaptation projects

Use of new technology tools: remote sensing

With advances in technology and the wider availability of remote sensing data, the use of remote sensing for M&E of crop yields, land degradation, soil moisture content, irrigation and drainage system performance among other NRM issues becomes technically and economically feasible. In certain respects, remote sensing offers considerable advantages over traditional M&E techniques (see the 'Toolkit for Monitoring and Evaluation of Agricultural and Water Management Projects' in the resources section).

Interviews, surveys and focus groups

Interviews with local key informants (e.g., village leaders, elderly, extension workers, NGOs and local climate change champions, if any) and community surveys or focus groups (e.g., women and savings groups and producer associations) are good approaches to detect changes in the availability and use of agricultural services and inputs, yield data (historical trends and timelines), coping strategies for climate and disaster events, use of early warning systems, access to insurance and credit, etc.

Resources

Tools

Toolkit for Monitoring and Evaluation of Agricultural Water Management Projects (ARD)

(Water for Food Team)

http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2008/07/23/000334955_20080723051908/Rendered/PDF/447990WP0Box321BLIC10m1etoolkit1web.pdf

Particularly:

1. *Guidance Note 3: Choosing and Specifying Indicators*
2. *Guidance Note 8: Remote Sensing in Monitoring and Evaluation of Agricultural Water Management (AWM) Projects*
3. *Guidance Note 9: Impact Evaluation of AWM projects*

A series of detailed tables providing Ag/NRM indicators used in forestry, fisheries, rural development, agriculture and other relevant sectors are available in:

- Punkari, Mikko et al. 2007. *Social and Environmental Sustainability of Agriculture and Rural Development Investments: A Monitoring and Evaluation Toolkit*. Washington, DC: The World Bank.
<http://siteresources.worldbank.org/INTARD/Resources/ESmetoolkit.pdf>
- PREM Thematic Group on Poverty Analysis, Monitoring and Impact Evaluation. 2006. *Impact Evaluation and the Project Cycle*. The World Bank.
http://siteresources.worldbank.org/INTISPMA/Resources/383704-1146752240884/doing_ie_series_01.pdf
- Rajalahti, Riikka, Johannes Woelcke, and Ejia Pehu. 2005. *Monitoring and Evaluation for World Bank Agricultural Research and Extension Projects: A Good Practice Note*. Washington, DC: The World Bank.
http://siteresources.worldbank.org/INTARD/Resources/ARD_DP20.pdf
- The World Bank. *The Development Impact Evaluation (DIME) Initiative*.
<http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDEVIMPEVAINI/0,,menuPK:3998281~pagePK:64168427~piPK:64168435~theSitePK:3998212,00.html>

Readings

- Baker, Judy. 2000. *Evaluating the Poverty Impact of Projects: A Handbook for Practitioners*. Washington, DC: The World Bank.
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTISPMA/0,,contentMDK:20194198~pagePK:148956~piPK:216618~theSitePK:384329,00.html>
- Eldis. *Participation Resource Guide*.
<http://www.eldis.org/participation>

- Eldis. Planning, Monitoring and Evaluation in Agricultural Research and Extension. *Guide to participatory extension methods used in community forestry in Laos*.
<http://www.eldis.org/go/display/?id=10696&type=Document>
- European Commission. 2004. *Project Cycle Management Guidelines, Vol.1*. Brussels: European Commission.
- Guijt, I. and J. Gaventa. 1998. *Participatory Monitoring and Evaluation*. Institute of Development Studies. Brighton, U.K.: University of Sussex.
- GTZ. 1997. *Objectives-Oriented Project Planning (ZOPP)*. Eschborn: GTZ.
- Land Degradation Assessment in Drylands (LADA).
The LADA project aims to assess causes, status and impacts of land degradation in drylands in order to improve decision making for sustainable development in drylands at local, national, subregional and global levels.
<http://www.fao.org/nr/lada/>
- Poverty Reduction – *Selecting Indicators* (Guidance Note)
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTPAME/0,,contentMDK:20191410~menuPK:435489~pagePK:148956~piPK:216618~theSitePK:384263,00.html>
- Prennuchi, Givonna, Gloria Rubio, and Kalanidhi Subbarao. 2002. *Chapter 3: Monitoring and Evaluation*. In PRSP Sourcebook. Washington, DC: The World Bank.
- UNDP. 1997. Office of Evaluation and Strategic Planning. *“Who are the Questionmakers? A Participatory Evaluation Handbook*. New York: UNDP.
<http://www.undp.org/eo/documents/who.htm>
Refer to part two on Participatory Evaluation.
- UNDP. 2007. *Monitoring and Evaluation Framework for Adaptation to Climate Change. Draft for Comments*. New York: UNDP.
http://www.undp.org/climatechange/adapt/downloads/Adaptation_ME_DRAFT_July.pdf
- The World Bank. *Building Government Monitoring and Evaluation (M&E) Systems also known as “Evaluation Capacity Development.”* Washington, DC: The World Bank.
<http://www.worldbank.org/oed/ecd/>
- The World Bank. *Independent Evaluation Group*. Washington, DC: The World Bank.
<http://www.worldbank.org/oed/>
- The World Bank. *The Logframe Handbook*. Washington, DC: The World Bank.
[http://wbln1023/OCS/Quality.nsf/Main/MELFHandBook/\\$File/LFhandbook.pdf](http://wbln1023/OCS/Quality.nsf/Main/MELFHandBook/$File/LFhandbook.pdf)

- The World Bank. *Participation and Civic Engagement*. Washington, DC: The World Bank. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTPCENG/0,,menuPK:410312~pagePK:149018~piPK:149093~theSitePK:410306,00.html>
- The World Bank. *Participatory Monitoring and Evaluation*. Washington, DC: The World Bank. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSOCIALDEVELOPMENT/EXTPCENG/0,,menuPK:410312~pagePK:149018~piPK:149093~theSitePK:410306,00.html>

Experts

For experts on land degradation and adaptation projects in arid lands, adaptation to climate change, knowledge and institutions, sustainable agriculture, M&E in agriculture and extension services, and on NRM project M&E, please contact the Climate Change Team at: climatehelp@worldbank.org.

Project Examples

A Project Appraisal Document (PAD) is the final product of a successful project planning process at the World Bank. For M&E related matters, the PAD requires development of the results framework and description of the M&E arrangements.

- Annex 2. *LAC Caribbean: Mainstreaming Adaptation to Climate Change Project*. Project Design Summary. Annex 1: Project Design Summary pp. 38-42. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2003/04/23/000094946_03040504062283/Rendered/PDF/multi0page.pdf

Note: This project is broadly focused on adaptation, not only in the Ag/NRM sectors.

- Annex 5. *China: Mainstreaming Adaptation to Climate Change into Water Resources and Rural Development*. http://www-wds.worldbank.org/external/default/main?pagePK=64193027&piPK=64187937&theSitePK=523679&menuPK=64187510&searchMenuPK=64187283&siteName=WDS&entityID=000104615_20070917173825
- Annex 7. *Kenya: Adaptation to Climate Change in Arid and Semi-Arid Lands (KACCAL)* http://www-wds.worldbank.org/external/default/main?menuPK=64187510&pagePK=64193027&piPK=64187937&theSitePK=523679&menuPK=64154159&searchMenuPK=64258544&theSitePK=523679&entityID=000021271_20070928115213&searchMenuPK=64258544&theSitePK=523679
- India: Andhra Pradesh Drought Adaptation Initiative (AP-DAI). A Baseline Report: Mahaboobnagar and Anantapur Districts, prepared by the Poverty Learning Foundation for the Society for Elimination of Rural Poverty (SERP). *The document can be downloaded in the Resources section of the online version of Guidance Note 8.*

Trust Funds Supporting M&E Activities

The [Institutional Development Fund \(IDF\)](http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/0,,contentMDK:21016577~pagePK:41367~piPK:51533~theSitePK:40941,00.html) focuses its activities on specific priority areas, including results-oriented M&E systems.

<http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/0,,contentMDK:21016577~pagePK:41367~piPK:51533~theSitePK:40941,00.html>

[PHRD Project Preparation TA Program](http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/ORGANIZATION/CFPEXT/EXTTRUFUN/EXTMAINPRO/EXTPHRD/0,,contentMDK:20916176~menuPK:2552443~pagePK:64168445~piPK:64168309~theSitePK:2524316,00.html). Project preparation grants finance, among other things, environmental and social impact assessments, and surveys.

<http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/ORGANIZATION/CFPEXT/EXTTRUFUN/EXTMAINPRO/EXTPHRD/0,,contentMDK:20916176~menuPK:2552443~pagePK:64168445~piPK:64168309~theSitePK:2524316,00.html>

[Spanish-World Bank Trust Fund for Impact Evaluation and Results-Based Management in Human Development Sectors \(SIEF\)](http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTISPMA/0,,contentMDK:21419502~menuPK:384336~pagePK:148956~piPK:216618~theSitePK:384329,00.html). SIEF (Spanish Impact Evaluation Fund) is a €10.4 million program funded by Spain to support the World Bank in evaluating the impact of innovative programs aimed at improving human development outcomes. SIEF supports prospective, rigorous evaluations in 11 eligible sectors/themes and 72 eligible developing countries (see Annexes). SIEF also supports training programs to build capacity for high-quality impact evaluation, and publications and dissemination of results. The program was launched in July 2007 and will run until December 2010.

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTPOVERTY/EXTISPMA/0,,contentMDK:21419502~menuPK:384336~pagePK:148956~piPK:216618~theSitePK:384329,00.html>

Glossary

Adaptation

Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects. Adaptation can be carried out in response to (ex post) or in anticipation of (ex ante) changes in climatic conditions. It entails a process by which measures and behaviors to prevent, moderate, cope with and take advantage of the consequences of climate events are planned, enhanced, developed and implemented. (adapted from UNDP 2005, UKCIP 2003 and IPCC 2001)

[For the purpose of the Guidance Notes, the term adaptation refers only to “planned adaptation” measures. Some development practitioners include a wide range of activities under the term “adaptation” (i.e., natural resource management, improved access to markets, land tenure, etc.) that, although disconnected from climate risk issues, are considered to indirectly decrease vulnerability/increase adaptive capacity. For the purposes of the Guidance Notes, a measure is referred to as “adaptation” only when it is an explicit response to climate risk considerations.]

Adaptive capacity

Ability of a human or natural system to: adapt, i.e., to adjust to climate change, including to climate variability and extremes; prevent or moderate potential damages; take advantage of opportunities; or cope with the consequences. The adaptive capacity inherent in a human system represents the set of resources available for adaptation (information, technology, economic resources, institutions and so on), as well as the ability or capacity of that system to use the resources effectively in pursuit of adaptation. (adapted from UKCIP 2003 and UNDP 2005)

Climate variability

Denotes deviations of climate statistics over a given period of time, such as a specific month, season or year, from the long-term climate statistics relating to the corresponding calendar period. In this sense, climate variability is measured by those deviations, which are usually termed “anomalies” (NSIDC Arctic Climatology and Meteorology). As a result of climate change, climate variability is expected to increase in most locations.

Impact evaluation

In the context of adaptation, assesses changes in adaptive capacity and resilience to climatic shocks of both natural and managed systems and human communities that can be attributed to a particular project, program or policy. The central question regarding impact evaluations is what would have happened to those receiving the intervention if the program had not been implemented. Impact evaluations are aimed at providing feedback to help improve the design of programs and policies. In addition to providing for improved accountability, they are a tool for dynamic learning, allowing policymakers to improve ongoing programs and, ultimately, to better allocate funds across programs.

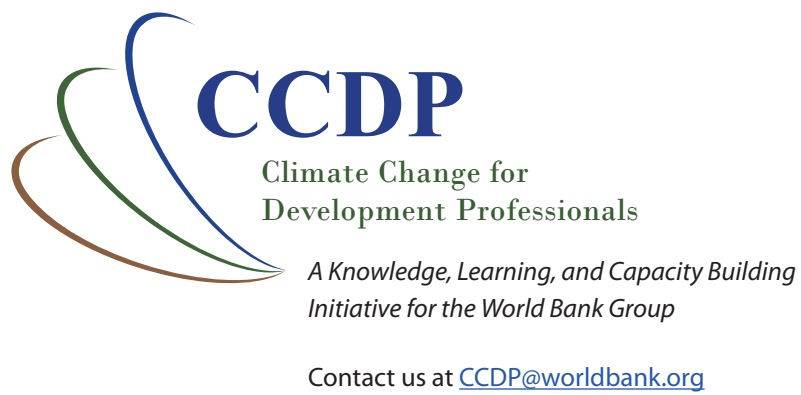
Resilience (to climate change)

When referring to natural systems, the amount of change a system can undergo without changing state. If referring to human systems, see adaptive capacity. (IPCC TAR 2001)

[When referring to human systems, the term “resilience” can be considered as a synonym of adaptive capacity (i.e., UN/ISDR 2004 defines it as the capacity of a system, community or society potentially exposed to hazards to adapt by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures). For the purposes of the Guidance Notes, mainly focused on human systems, the two terms are often used interchangeably.]

Vulnerability to climate change

The degree to which systems affected by climate change are susceptible to and unable to cope with adverse impacts. (adapted from UKCIP n.d.)



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