

A Prototype Monitoring, Learning and Evaluation Platform

Benchmarking climate resilience in the
private sector for PROADAPT

Framework Report for MLE
May 2016



A Prototype Monitoring, Learning and Evaluation Platform

Monitoring project investments and progress toward climate resilience in the private sector requires extensions to the normal project-level indicators of outputs. Based on a conceptual framework of a continuum of adaptation in achieving resilience, a prototype Monitoring, Learning and Evaluation (MLE) platform requires co-learning with key stakeholders, benchmarking the toolkit in actual projects and bringing together a robust toolkit.

The methodology for designing an MLE platform for Proadapt, a review of existing approaches, and an initial dashboard are all covered here.

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About the Multilateral Investment Fund

The Multilateral Investment Fund is the innovation lab for the Inter-American Development Bank Group. It conducts high-risk experiments to test new models for engaging and inspiring the private sector to solve economic development problems in Latin America and the Caribbean. The MIF addresses poverty and vulnerability by focusing on emerging businesses and smallholder farmers with the capacity to grow and create economic opportunities.

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Headlines

1. Designing a prototype MLE platform integrates practice and co-learning with stakeholders.
2. Existing frameworks and KPIs are a good starting point for learning.
3. Resilience requires agile management and learning--beyond logframes.
4. Monitoring resilience builds on an actor-based Theory of Change.
5. Private sector projects cover a range of context and objectives; each requires different approaches to MLE.
6. Actors make decisions on what to monitor and how they learn; represented as Adaptation Use Cases.
7. Resilience is a system property of long-term pathways; that also applies within projects and individual stakeholders.
8. A typology and examples of KPIs helps design effective MLE systems.
9. The MLE Platform collects practical functions in a Dashboard.
10. A prototype MLE Dashboard will be reviewed in Washington.

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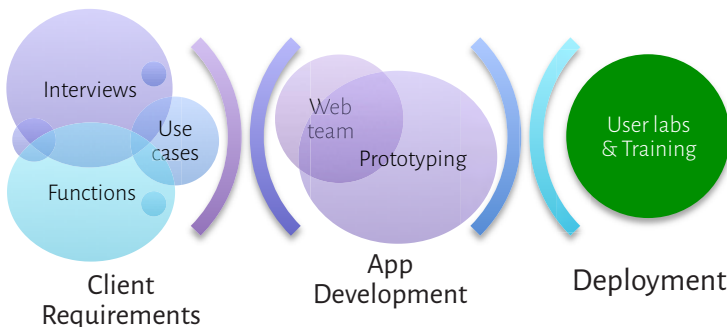
Introduction and our co-learning approach

PROADAPT invests in climate resilience, within the FOMIN mission of supporting small and medium sized enterprises (SMEs) through the private sector. GCAP and Grupo Laera are supporting ProAdapt in developing concept notes for projects in Honduras and Nicaragua in cacao, milk, honey and tourism. Existing PROADAPT projects include small-scale farming in the Sertao, coffee sector in Colombia, regional market integration in Bolivia and Argentina (milk in the Gran Chaco region) and the tourism in the Caribbean.

One objective of the GCAP-Grupo Laera support is to develop an M&E framework for PROADAPT. Discussions with the PROADAPT team over several years are an essential element of our co-learning approach to the challenges of designing, and learning from, investments in climate resilience.

This first report from the project on M&E provides an overview of our approach and the work plan for delivering a prototype framework.

We approach knowledge management services with a strong understanding of the client's knowledge base, personnel and decision processes. Our toolkit is designed to achieve profound learning and effectively support the relevant actors and their decision spaces,



Building an effective platform to meet the client's requirements

A brief log of our engagement with PROADAPT on project development and M&E includes:

- Seminar in Washington, late 2011, introduced our conceptual orientation of pathways of adaptation, actor-oriented analysis, focus on private sector action and learning from practice.
- Participatory workshop in Bogota, February 2012, with PROADAPT team, FOMIN experts and IDB project managers from selected countries with an explicit objective of learning about M&E for resilience.
- Project design work in Honduras and Nicaragua, began in late 2013, including reviewing private sector models for achieving resilience, interviews with a range of actors in each country, sector-specific enterprise processes, catalogue of options and indicators.
- Initial discussions with the M&E team in the IDB in Washington, April 2014.
- Consultative workshops with stakeholders in Honduras and Nicaragua, including field visits to pilot projects and prospective project partners, June 2014.
- Interactive workshop in Oxford, August 2014, with sessions on Theory of Change, M&E and project design (among many other foundations of climate adaptation and finance).

...overview

Designing a prototype MLE platform integrates practice and co-learning with stakeholders.

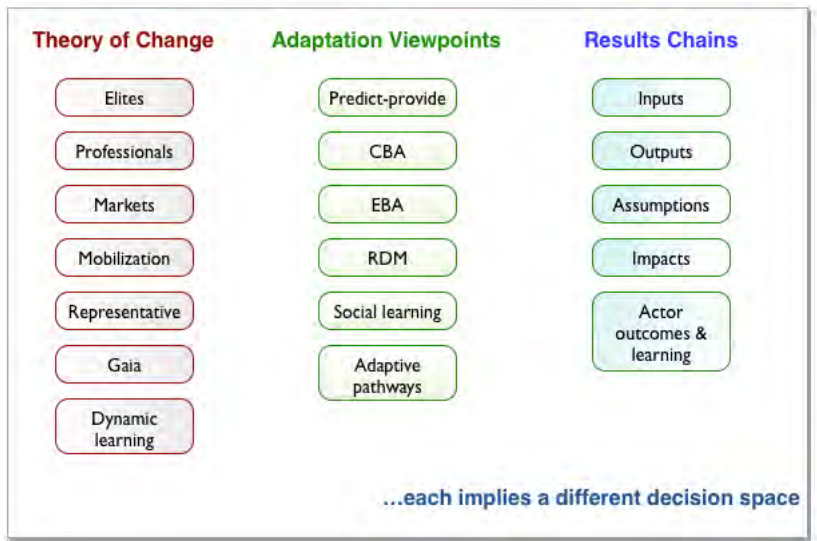
This rich history of engagement has yielded many insights as we sought solutions in project design to support climate resilience in SMEs. The practice of small producers and managers has informed our approaches and sharpened our toolkit.

One key insight is the focus on learning. Many of the SME managers, are not experts in climate change and are struggling to keep their businesses afloat after suffering from floods and other climate risks in the past few years. At the time of this report, a major regional drought has wrought further havoc. For this reason, we have styled our platform as Monitoring, Learning and Evaluation (MLE). Monitoring is the foundation for learning, and enables evaluation of outcomes.

The methodology for developing the MLE platform for PROADAPT involves a stream of actions, with a high level of interaction and innovation across our team and with the PROADAPT and FOMIN experts.

Action 1. Understand the mission, context and scope for private sector investment in PROADAPT. This builds on the project designs in Honduras and Nicaragua and runs through our engagement with PROADAPT over the past several years. The purpose of MLE fore resilience within PROADAPT lies between the project-compliance requirements of an investment bank and the socio-economic mission of transformation in the risks and opportunities facing SMEs in Latin America.

Action 2. Review relevant Theories of Change and indicators of resilience within the context of FOMIN projects. This was the focus of the Bogota workshop. One conclusion, shown below, is that there are several high level Theories of Change that are relevant in the region. For the most part, PROADAPT uses a Profession-Markets Theory of Change, linked to classical project-based results chains of Inputs > Assumptions > Outputs. The challenge for MLE is to understand the enabling conditions for Impacts beyond the project cycle.



Major perspectives on climate resilience link fundamental Theories of Change with project-based results for different modes of adaptation

Action 3. Review KPIs commonly found in resilience frameworks and develop project-based M&E indicators for the concept notes in Honduras and Nicaragua. This practice-based learning is essential in grounding our framework. The M&E plan for existing PROADAPT projects are a good starting point for a programmatic understanding.

Action 4. Categorize PROADAPT projects depending on the context for MLE and build Adaptation Use Cases for each category. Use cases are a formal method for representing stylized decision spaces and evaluating the practicality and value of information systems.

Action 5. Design an MLE Dashboard and supporting applications as a prototype system. Drawing upon the learning and analysis in Actions 1 to 4, the Dashboard shows how the platform would function and its value in achieving PROADAPT's mission.

Our methodology is informed by agile software development and our outcome orientation in learning platforms. Our ultimate purpose is a knowledge service that is used by our clients, effective in their decision-making and scales up to meet new demands.

As the framework is developed with the PROADAPT and IDB teams, we will revise our initial concepts and the toolkits that we bring to bear. At this stage, we propose specific objectives for the MLE platform:

1. Extend existing M&E procedures within the IDB to include learning and resilience
2. Focus the MLE approach on private sector actors and their framing of resilience and needs for learning platforms
3. Provide simple tools that can be easily deployed within the PROADAPT projects
4. Develop a pathway for more in-depth learning platforms and scaled up assessments of resilience

Stocktaking of existing resilience indicators

We have reviewed a range of M&E platforms (or systems, protocols, frameworks) that other Banks, major donors and NGOs have adopted. The table summarizes the major efforts. As we work through the framework for PROADAPT we will expand this table and draw more detailed recommendations.

There is a burgeoning literature on M&E. The number of proposed tools/toolkits is growing faster than anyone can expect to follow. Yet, most of the systems borrow heavily from previous work and share common features.ⁱ

The Climate Investment Funds and a few others stand out a ‘pretty good practice’. Possibly, this is imposed on the field by their weight of funding and extent of their documentation. Multivariate systems are widespread, for instance in spider diagrams based on livelihood capital.

Measuring impact in achieving climate resilience is far less impressive, although it is now recognized as the essential ‘added value’ of climate adaptation M&E. Existing frameworks tend to ‘count the beneficiaries’ with less emphasis on the extent of their learning or the systemic properties of resilience in actor-networks of information, labor, skills, technology and finance.

The first generation of indicators based on avoided future climate damages seem to be discounted as they are very difficult to measure and don’t deal with decision making under uncertainty. However, systems have not been able to replace the naïve ‘predict-and-provide’ viewpoint with robust yet simple tools.

The second generation of process indicators is also seen as insufficient—just tracking the number of targeted beneficiaries who received useful climate information is of limited value in demonstrating capacity.

The challenges of change-making, setting targets and monitoring progress, and evidence for measuring impacts remain. Although increasingly identified as key issues to work on, there are relatively few programmes that support the knowledge infrastructure required in this area.

ⁱ SEA Change and UKCIP provide a summary of 22 frameworks, with similar conclusions. See <http://www.ukcip.org.uk/me-resources-review-new-report-from-ukcip-sea-change-cop/>

Some key challenges are:ⁱ

- Climate change and impacts are subject to ‘deep uncertainty’ and the effect of any proactive investment is hard to attribute.
- Climate change brings into decision making very long time horizons, well beyond the usual project cycle
- Counterfactuals to any assertion of cause-impact are likely to be credible, especially given changing socio-economic conditions
- Indicators must be specific to the context, which is often poorly represented and dynamic in the relations between actors and the economy.
- M&E systems are being designed to establish a baseline and measure impact while also informing the *process* of adaptation, which might change the definition of expected impacts of a project intervention.
- Non-linearity of trends, rapidly changing socio-economic baselines, path dependence and complexity in coupled socio-ecological systems pose difficulties for impact evaluation.
- Standardized impact evaluation methodologies may be misleading by imposing a framing of adaptation that is not realistic or shared by stakeholders.
- Lack of an existing evidence base, and good quality data related to climate as well as socio-economic conditions and impact outcomes.

...stocktaking

Existing frameworks and KPIs are a good starting point for learning.

A more extensive list of challenges is available in the SEA Change/UKCIP review: Bours D, McGinn C, Pringle P (2014a) *Twelve reasons why climate change adaptation M & E is challenging*. SEA Change CoP, Phnom Penh and UKCIP, Oxford.

ⁱ This list draws upon a note from Anand Patwardhan of the GEF STAP. GCAP is contributing to a review of M&E with Anand and the GEF team.

	Strategy/M&E Framework	Examples of Adaptation-Related Indicators/Measures of Success	Strengths of M&E System	Challenges of M&E System
African Development Bank	Climate change action plan results framework (2011-2015); independent evaluation unit	Increased number of climate-proofed investments; number of bank-funded trainings/workshops; increased number of countries with policy/institutional frameworks	Climate Safeguards System is being piloted to screen climate risks in all Bank projects	Need for more appropriate indicators that are verifiable by reliable data Reported conflicts of interest in reporting on indicators
	Bank-wide results framework; Climate Resilience Strategy 2020; independent evaluation department	Proportion of projects supporting adaptation (indicator of bank-wide results framework)	M&E has improved significantly with establishment of independent evaluation	Need for improved indicators and baseline information
CARE	Participatory Monitoring, Evaluation, Reflection and Learning (PMERL) Framework for Community-based Adaptation – a participatory approach to community-level monitoring and evaluation	Collectively develop "outcome statements" with corresponding quantitative or qualitative indicators For example: % of households growing crops resilient to climate hazards affecting the target area (quantitative); Knowledge of climate impacts on a scale of 1 to 4 (qualitative)	Allows many groups and stakeholders to reflect collectively, which encourages all parties to apply lessons learned Takes into account social inequalities by including the most vulnerable in the reflection process and by collecting information that is disaggregated by gender Uses a mix of quantitative and qualitative indicators	Establishing trust and reconciling different opinions among diverse stakeholders
	Country level framework with 5 core indicators; more specific frameworks to be developed at the program/project levels governed by the managing MDBs	Core indicators: Degrees of integration of climate change planning; Evidence of strengthened government capacity; Quality and extent to which instruments and investment models are developed and tested; Extent to which vulnerable households, communities, etc. use improved PPCR supported tools to respond to climate variability/ changes; Number of people supported by the PPCR to cope with the effects of climate change	Limiting the number of indicators; Mix of qualitative and quantitative indicators Qualitative indicators are scored via a participatory process	Some of the indicators are difficult to track, especially those that will require collecting information on decision-making influenced by climate information (the records may not exist)
DRD	Climate and Environment Department Operational Plan 2011-2015; Traffic light dashboard review of results framework conducted biannually; Evaluation is being embedded in the organization	Number of people supported by DRD funding to cope with the effects of climate change; Number of capacity building programmes approved through Multilateral Funds	Increasing number of evaluations being conducted Results-based system reported to be strong by independent reviewers	Ensuring evaluation quality through embedding Evaluations are almost entirely at programme level with very few at the thematic or country level

	Strategy/M&E Framework	Examples of Adaptation-Related Indicators/Measures of Success	Strengths of M&E System	Challenges of M&E System
GEF/LDCF/SCF	Adaptation Monitoring and Assessment Tool (AMAT); independent evaluation by GEF Evaluation Office	Number of adaptation measures implemented at local, national, or regional levels; Knowledge and capacity for up-scaling and replication is in place; Number of food-secure households (less relevant to the implemented activity)	Emphasis on knowledge-sharing Logframe tracking tool used across projects allows for easier comparisons to be made	A GEF Evaluation found that there was confusion between outcome and output indicators Many indicators are vague and not "SMART", especially with respect to measurability and specificity
GIZ/WRI	"Making Adaptation Count" A Six-Step Guide to Developing a M&E System: 1. Describe the Adaptation Context; 2. Identify the Contribution to Adaptation; 3. Form an Adaptation Hypothesis; 4. Create an Adaptation Theory of Change; 5. Choose Indicators and Set a Baseline; 6. Use the M&E System	Distinguishes between process-based (supports learning) and outcome-based indicators (supports accountability), each with its respective advantages and disadvantages Process-based: Degree and quality of participant involvement in adaptation decisions; Thoroughness of accounting for climate risks and vulnerability and decision making Outcome-based: Utility and quality of early warning systems; Change in degree of exposure to climate risks and threats	Theory of change approach enables project manager to map out a chain of events and underlying assumptions, which is especially useful in a multi-scenario intervention	Presents general guidance that may need to be supplemented by other guidelines
Inter-American Development Bank	Bank-wide results framework (2012-2015); "traffic light" system displays progress towards 2015 goals	Number of countries with planning capacity in mitigation and adaptation	All proposed indicators have 2006-2009 baselines to measure progress	Developing indicators that demonstrate longer-term success; Developing indicators that demonstrate additionality
USAID	Climate Change and Development Strategy (2012-2016) results-based framework; independent third party evaluation	Short-term: Increased number of institutions with improved capacity; Increased stakeholder engagement; Greater access to climate data Long-term: Reduced economic/social losses; Increased partner country investments in climate-resilient development	Improved quantity and quality of USAID evaluations, due to new agency-wide guidance and emphasis on M&E	Inadequate baseline data Focusing evaluation questions Interpreting data and conclusions subjectively undermine the quality of evaluations
World Bank	Strategic Framework for Development and Climate Change (SFDCC) (2009-2011) tracks spending on climate change with a new action plan in development; evaluations conducted by Independent Evaluation Group	Success measured primarily by financial inputs and leveraging	More emphasis is being placed on participatory approaches in terminal evaluations	Too much emphasis on inputs (spending) that assume to have adaptation benefits No learning mechanisms built into strategic framework; lack of assessment of climate risks across World Bank projects

Examples of M&E systems

Climate resilience challenges M&E systems

Planning, Monitoring and Evaluation are generally placed in a cycle of learning with the purpose of:

- Providing a basis for accountability, especially for public funds
- Improving the development effectiveness of future investment

...challenges

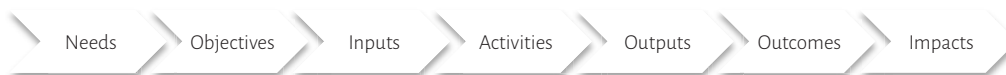
Resilience requires agile management and learning--beyond logframes.

Evaluation of the impact of an investment generally follows the OECD-DAC guidance:

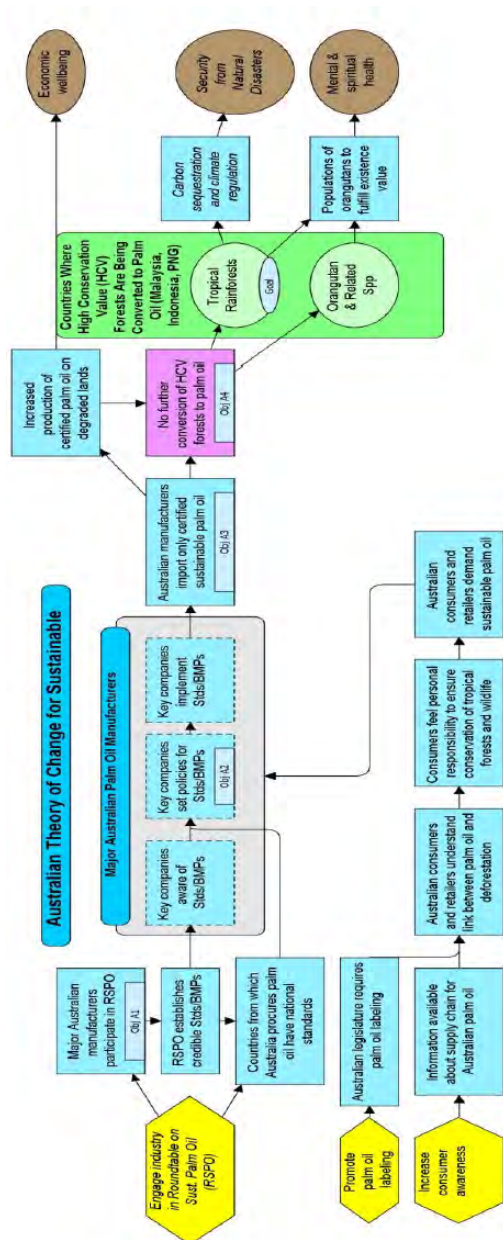
- Relevance: the extent to which the objectives of the investment matched the priorities or policies of major stakeholders and beneficiaries
- Effectiveness: whether outputs led to the achievement of the planned outcomes
- Efficiency: assesses the outputs in relation to inputs
- Impact: changes—intended and unintended—occurred as a result of the investment
- Sustainability: how far changes are likely to continue in the longer term

The orientation in impact evaluation is shown in the usual sequence as reflected in a logistical framework. The OECD-DAC evaluation criteria refer to the links in this logical chain.

Based on this logframe, a project team develops indicators to measure outputs, outcomes and impacts. Assumptions underlying each linkage are part of the project analysis. The palm oil example highlights key assumptions that link the inputs (e.g., Promote palm oil labeling) to outcomes (Consumers demand sustainably produced palm oil).



Impact chains are the core logic of most project designs



Example of a results chain for palm oil production from WWF Australia

A logframe contains the key elements. Using this 'standard model' we suggest some of the key challenges for resilience MLE.

	Project	Objectively verifiable indicators of achievement	Sources and means of verification	Assumptions
Goal	a			
Purpose				b
Outputs	c	d	e	
Activities		f		g

- (a) The project goal sits within the transformation of a sector, yet path dependence, scale factors and other socio-institutional changes are beyond the project scope.
- (b) Learning may mean the project purpose, components and outputs change as stakeholders gain new information and skills, yet such 'adaptive learning' is hard to express in the results chain.
- (c) Outputs are linked to inputs with a project plan that involves stakeholders and beneficiaries, yet achievement of the outputs may depend on other actors, sometimes in competition but hopefully in fostering positive spillover.
- (d) Project teams must define a baseline with relevant indicators, yet learning may shift the problem definition and relevance of the indicators from one domain to another (e.g., from higher yields on-farm to higher profitability in the sector).
- (e) Monitoring platforms are required to measure the impacts beyond the specific outputs, yet these may not be maintained and are expensive if they only serve one project.
- (f) The technology available to a project may shift radically; this creates a conflict if the project is committed say to small catchment hydro when in-stream technology becomes competitive.
- (g) Across the entire logframe, actors are often assumed to be available and capable of implementing the activities; yet the socio-institutional context may change rapidly while the project is locked-in to a specific work plan.

Developing a Theory of Change for climate resilience

Logframe Analysis (LFA) is the tool of preference for project design, monitoring and evaluation in international development. It is very useful to set up a well-structured M&E framework that will satisfy the requirements of donor organizations, especially for accountability and operational information. LFA uses a logic model of how a development programme should work to solve identified problems. The model is based on the propositions that:

- All inputs are identified at the outset and programmed in the project plan
- Every input will lead to an identified output and measurable outcome

These propositions are unlikely to hold in development projects where goals are not simple and knowledge of causal links is weak. From a systems point of view, it could be argued that LFA presupposes “systemic invariance”. Others have pointed out that analysis of the type used in LFA, with its emphasis on attribution and accountability, can be dangerous as it leads to simplified, reductionist thinkingⁱ. The disconnects between outputs, short-term outcomes and longer-term outcomes have been known to the evaluation community for almost half a centuryⁱⁱ.

...Theory of Change

Monitoring resilience builds on an actor-based Theory of Change.

Engaging actors	Knowledge model	Learning processes
<ul style="list-style-type: none">• Empowering stakeholders• Demand for accountability• Evidence of impact	<ul style="list-style-type: none">• Inflexible logic in LFA• Rigid reporting framework	<ul style="list-style-type: none">• Constraints of quantitative indicators• Learning reduced to a commodity• Underinvestment in evaluation

Constraints in LFAs

The inflexibility of LFA and demands for accountability and impact may hinder learning. Ironic, as learning is central to projects seeking to achieve climate resilience.

ⁱ Uphoff N (1992) Learning from Gal Oya: possibilities for participatory development. Uphoff CM et al. (2000). Demonstrated benefits from social capital: the productivity of farmer organizations in Gal Oya, Sri Lanka. World Development, 28(11) 1875–1890.

ⁱⁱ Suchman EA (1967) Evaluative research: principles and practice in public service and social actions programs. Russell Sage Foundation, New York, NY, USA.

A full MLE platform requires stakeholders to identify the principles underpinning the system. A comprehensive list indicates the range of issues and applications that may be part of the functional design.ⁱ

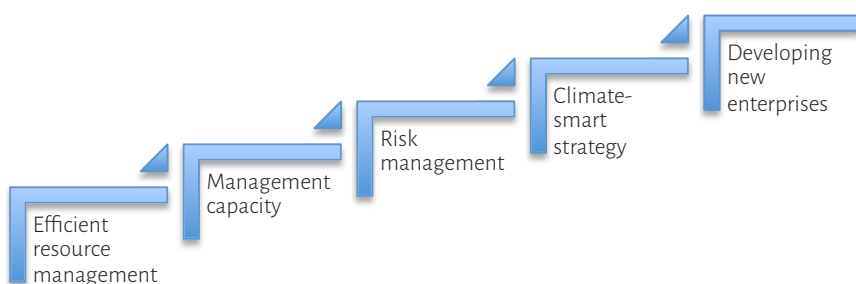
Principle	Criteria
Voice and inclusion of beneficiaries	<input type="checkbox"/> Perspectives of beneficiaries included in the evidence <input type="checkbox"/> Perspectives of the most excluded groups included <input type="checkbox"/> Findings disaggregated according to social differences <input type="checkbox"/> Beneficiaries play an active role in designing process
Appropriateness given nature of the intervention	<input type="checkbox"/> Data collection methods relevant and reliable <input type="checkbox"/> Sample in proportion to the conclusions <input type="checkbox"/> Team skills to deliver high quality data and analysis <input type="checkbox"/> Data analysed for convincing conclusions
Triangulation of effects using a mix of methods and perspectives	<input type="checkbox"/> Different data collection methodologies used <input type="checkbox"/> Perspectives of different stakeholders compared <input type="checkbox"/> Conflicting findings and perspectives explained <input type="checkbox"/> Conclusions shared and validated by key stakeholders
Contribution: how change happened	<input type="checkbox"/> Comparison to show change--baseline, counterfactuals <input type="checkbox"/> Explanation of how intervention contributed to change <input type="checkbox"/> Alternative factors to explain observed results <input type="checkbox"/> Unintended and unexpected changes identified
Attribution of weather-related impacts & additional climate change	<input type="checkbox"/> Baseline of historical weather-related impacts <input type="checkbox"/> Alternative pathways of future impacts identified <input type="checkbox"/> Path dependence of intervention and outcomes
Transparency of data sources, methods, results	<input type="checkbox"/> Methods and limitations of data explained and justified <input type="checkbox"/> Documentation of who collected and analysed data, and potential bias <input type="checkbox"/> Clear logical link between the conclusions and data

ⁱ Adapted from: BOND (2012) An introduction to the principles for assessing the quality of evidence. www.bond.org.uk

A Theory of Change for monitoring, learning and evaluation in the private sector has particular requirements. Ignorance of the effects of climate change, difficulties in anticipating problems and slow reaction to finding solutions, as well as the limited use of opportunities, have been recurring features of dialogues with SMEs. Linked to social, financial, technology and market risks and trends, the adoption of a new modes of production, use of new tools, creation of new organizational structures and development of new business processes are all required to achieve resilience to climate change.

Climate adaptation planning and processes should begin and end with the main purpose driving a business: being profitable as a result of investment. Private sector adaptation to climate change should decrease the risk of such investment to climate consequences while actively promoting business goals and outcomes.

This statement of climate adaptation applied in the private sector points to a continuum of action. Terms and phases of action appropriate to the private sector are shown below. This continuum draws upon a more general progression from Good development to Learning capacity and planning. Reducing current vulnerability and Enhancing resilience and finally Transforming development pathways.



A continuum of action in the private sector to achieve resilience

Our Approach: Types of resilience projects

Not all investment projects are the same. Thus, it makes sense to design MLE systems that match up to the type of project investment. Our approach:

- Links to thinking about the kinds of coupled socio-ecological systems that form the context for resilience investment
- Focuses on the nature of private sector actor-networks in managing the investment
- Follows conventional risk ratings in using a simple typology

...project types

Private sector projects cover a range of context and objectives; each requires different approaches to MLE.

Three levels of private action are described in our typology. Examples are drawn from our library of use cases.

Management process. The investment is managed in an enterprise that is clearly defined with existing management, including staff, roles, information systems and procedures. An enterprise may include more than one organization as long as they share similar management values and have existing relationships that relate to sharing information and making management decisions. The investment is likely to be simple to structure with few issues of political economy. The results chain for the investment is likely to be clearly targeted within existing business processes.

- A smallholder farmer is a single entity, although several people may be involved in different decisions. Monitoring farm processes is part of the enterprise and it is relatively easy to adapt the existing farm procedures to provide indicators for monitoring resilience.
- A commodity cooperative links the market with smallholder farmers through an enterprise that provides technical inputs and finance and processes produce. While MLE in the cooperative involves more than one enterprise, they share common purpose and contractual relations.

Multi-stakeholder market. Investment is designed to reach across sectors with many more stakeholders involved. Investment is systemic, usually seeking to shape markets in the region. While there may be a single entry point, such as a micro-finance institution, the success of the investment depends on many stakeholders, and there may be competition to provide the same service. The

scale of investment for a single beneficiaries may be relatively small, although the aggregate effect on the sector and market might be quite significant. New business processes may be required, and even new organisations. However, they have similar features to existing systems and thus are a focus for training rather than fundamental innovation and learning.

- Market-based finance for technology that enhances resilience. A lender might offer a package for planting an improved cultivar that is more resilient to weather extremes. The individual benefits depend on the value of the produce in competitive markets where quantity and quality are important, in addition to transporting and processing costs.

These two types are familiar and relatively easy to anticipate. The next two levels are more challenging for investment as there is much less experience of what works.

Transformational leadership. Resilience over a longer term may involve creating new markets, intervening in complex coupled socio-ecological systems, designing new systems of governance and reform of public-private relationships. Existing organisations are inadequate for these challenges and thus new leadership is required. These are situations in which the political economy of change-making is likely to dominate any single investment. Outcomes and impacts are difficult to anticipate due to the many factors that drive development pathways, the anomalies of extreme events (another ‘Mitch’) and tipping points in quasi-equilibrium environmental resources.

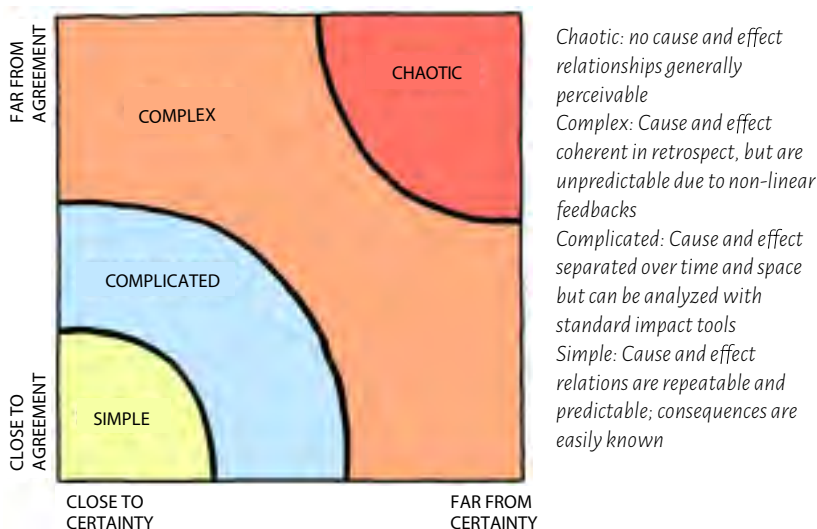
- Resilient landscapes for eco-tourism. Beyond marketing environment as a spectacle for tourists, environments at a regional level need to anticipate change, integrate ecological services and achieve a level of value that entices tourists looking for a new definition of ‘resort’. Investment in this ‘agenda’ must be long-term, reach across many stakeholders and command regulation of land use at a political level.

Crisis response. In the midst of a crisis—whether a financial collapse or weather-related extreme event—management shifts from environmental sustainability to protection of assets, recovery of business services and short-term decisions. While crisis responses may be targeted for investment, linking to some features of Disaster Risk Management, during a crisis the management functions may be suspended while people focus on urgent tasks.

- A small producer (whether milk or eco-tourism, the situation is similar) is faced with a major drought and water supplies are intermittent at

best and energy outages occur on a daily basis. Enterprises face the decision of suspending operations until the drought is over—many smallscale tourist operators already due this in the low season. Note that the four levels scale from 'easy' to 'high impossible'. And that the labels for these categories are driven by a sense of how MLE fits within private sector management regimes. These are preliminary concepts that will be refined and may change completely as we progress to a functioning prototype.

Framing of adaptation in the context of socio-ecological systems and resilience has produced a similar typology (see technical notes prepared by John Colvin for more details). Four 'frames' for development problems are being developed by DFID.ⁱ



Typology of problems for evaluating interventionsⁱⁱ

ⁱ DFID (Department for International Development) (2014a) DFID climate change learning system workshop. London: DFID, internal presentation. DFID (Department for International Development) (2014b) Scoping an approach to learning across the International Climate Fund (ICF) and other DFID climate investments – an initial learning system design. Internal report. London: Climate and Environment Department (DFID) with the Global Climate Adaptation Partnership (GCAP), July 2014.

ⁱⁱ Snowden D, Boone M (2007) A Leader's Framework for Decision Making. Harvard Business Review: 69–76, November 2007.

This framework is particularly useful in developing Theories of Change, as the design of change pathways in simple, complicated, complex and chaotic situations is substantially different in each case. To give a flavour of these differences:

- In simple situations, where cause and effect relations are repeatable and predictable, we can use best practice approaches. This means that the change pathways that will guide us from where we are now to the change or impact we want to create are known and can essentially be delivered by following best practice guidelines (or if we are already familiar with best practice, repeating what we already know). Stakeholders can be managed through instruction and using classic project management methods. Situations of this type in the climate change resilience or adaptation space relatively rare.
- In complicated situations, where cause and effect relations are separated over time but analyzable, we can develop good practice approaches based on expert analysis. Here change pathways can be worked out and then set out in a log frame. Working with stakeholders is however more challenging in complicated situations than in simple situations, either because we have to work harder to sell our preferred (expert-based) solutions in order to create buy-in across different stakeholder understandings and perspectives, or because we may need to draw on others' perspectives and understandings using more consultative approaches in order to determine the optimal pathways forwards. Some situations in the climate change resilience or adaptation space are of this type.
- In complex situations, where cause and effect relations cannot be known except in retrospect, levels of uncertainty, difference, conflict and/or complexity in the situation are much higher than in simple or complicated situations (Figure 7). This therefore requires that we work with emergent practices. As these cannot be pre-determined they must be co-created with others, using processes of social learning and experimentation. Many situations in the climate change resilience or adaptation space are of this type.
- In chaotic situations, searching for good answers is pointless - the relationships between cause and effect are impossible to determine because they shift constantly and no manageable patterns exist—only turbulence. In the chaotic domain, the immediate job of anyone taking a leadership role is not to discover patterns but to stanch the bleeding. A leader must first act to establish order (novel practice), then sense where stability is present and where it is absent, and then respond by working to

transform the situation from chaos to complexity, where the identification of emerging patterns can both help prevent future crises and discern new opportunities. Communication of the most direct top-down or broadcast kind is imperative; there's simply no time to ask for input. Chaotic situations are typical of disasters but may also characterize some future adaptation scenarios.

Mapping our typology of private-sector interventions with these conditions of complexity provides some insight into what is required from the MLE platform for PROADAPT.

	Simple	Complicated	Complex	Chaotic
Management Process				
Multi-stakeholder Market				
Transformational Leadership				
Crisis Response				

MLE designs build on private sector management and fit-for-purpose in challenging socio-institutional environments

Key:

Best practice	Classical project management, procedures; based on project-level Theory of Change including quantitative indicators
Good practice	Shared Theory of Change at project and programme level; selling and consulting tools (scenarios, learning platforms, etc.)
Shared Learning	Co-creating to share knowledge, resources and utilization of passion and responsibility, including appreciative inquiry
Edge of chaos	Emergency surveys, news reports, demand-led mechanisms

Our Approach: Stylized Adaptation Use Cases

Adaptation Use Cases characterize who is making decisions and what they need in terms of information and procedures. These are stylized actors, but realistic based on interviews with real stakeholders and our experience in the sector.

Our library of use cases contains more extensive analysis of each case and additional cases. Below we identify key use cases that capture the range of functions we expect from an MLE platform. The use cases are aligned with the four types of investment projects from the section above. Direct beneficiaries are those stakeholders who would be part of the project contract. Others who have an interest in the project are shown as managers.

Investment type	Direct beneficiaries	Investment managers
Management Process	Smallholder farmer	National project manager
Multistakeholder Market	Cooperative manager	
Transformational Leadership	Regional tourism foundation	Investment portfolio manager
Crisis Response	Drought emergency response officer	Civil society (public)

Use cases for different types of investment projects

The library of use cases is structured with the following fields.

Labels: Short code, Name and Descriptive text

Precis: Brief narrative of the use case, graphic/photo

Actors: Name ; Organisation; Organisation function; Actor role; Actor goal

Decision: Output; Context; Conditions; Criteria; Confidence

Scenarios: Main success; Constraints; Failure

Supporting notes

Below we provide only the brief narrative for the MLE Use Cases. Bullets note: which class of MLE problem applies; what monitoring information the use-case requires; learning objectives by the use-case; and types of evaluation that support future use-cases of this type.

João: Smallholder Farmer

João has a smallholding of semi-subsistence, rainfed crops. He is well aware that seasons are variable, and appear to have become more so. Some of his neighbors have been using seasonal climate outlooks, which are readily available in the local area. His main agro-tech supplier has launched a financial package tied to the forecasts that let him borrow key inputs in time for planting. João cannot afford to take a significant risk and doesn't want to get further into debt. He is interested to know whether his neighbors really used this information and whether they achieved better results in the past few seasons.

...use cases

Actors make decisions on what to monitor and how they learn; represented as Adaptation Use Cases.

- Management Process: Simple context of planting decisions made by the farm enterprise
- Monitoring: Availability of recent results from other farmers in the area
- Learning: Building up his understanding of outcomes over time among his peer group, leading to confidence in making his own decision
- Evaluation: Model representative farms in agent-based simulations with learning

Estelle: Cooperative Manager

Estelle is the Head of Operations for a farmers' cooperative. She has a certificate in business management and comes from a farming family in the area. However, she is not an agricultural expert nor fully trained in project management, accounting and such. Rather, she relates well with people and likes to solve practical problems. The cooperative has been offered a lead role in a new project to promote resilience. However, for the project to be implemented, she needs to evaluate the business case for 'her' farmers and ensure that the burdens of taking on new technology, information systems, training and M&E are justified by the results. She is acutely aware that the cooperative is not the only player in the region nor in the market. The success of the investment may well depend on what other cooperatives, private agents and the non-profit organisations are planning. After all, resilience is not a commodity that only one group can control!

- Multi-stakeholder Market: Complicated context as Information, finance, agro-technology and markets in the sector are changing rapidly and several large actors are likely to make significant investments if it looks profitable

- Monitoring: Baseline of supply-value chain indicators over the past five years, including major weather-related factors
- Learning: Confidence in the business case for her cooperative and for the members who would adopt the technology
- Evaluation: Simple statistical analysis of baseline and scenarios of alternative outcomes over the next 10 years

Daniel: National Project Manager

Daniel manages an investment project that aims to support resilience in a supply chain. The lead (executing) stakeholder is a large company with field offices throughout the region. Daniel has been hired to coordinate by this company to coordinate the project—drawing upon his background in civil society and as an engineer with a certificate in project management. Daniel has to balance three spheres—the formal reporting requirements of the project investors, the many individuals and SMEs who participate in the project as beneficiaries, and his new company that has its own mission and procedures. He really cares about the project being a success, which is important for his personal values and his career. At times he finds the reporting requirements and ‘paperwork’ take up all his time and drag down his energy and enthusiasm for seeing real improvements in the region.

- Management Process for some elements in a Multi-stakeholder Market: both Simple and Complicated contexts depending on the component of the project.
- Monitoring: Quarterly reports from all of the projects performance indicators
- Learning: Compiling monitoring information to identify what is working and could be scaled up in a business case and what is not working and needs remedial action in the project management team
- Evaluation: Primarily driven by investors’ requirements and not seen as essential to either his company or the direct beneficiaries

Adele: Regional tourism foundation

Adele (and her husband) have set up a foundation to support eco-tourism in their home region. The foundation is a nationally registered charity and the trustees are all reputable business people and experts in the sector. However, the foundation is just getting started. A good business plan needs to be translated into enabling capacity and institutional development. One of the key processes is to set targets for their vision.

- Transformational Leadership: Complex context of mobilizing the many actors in the region to create an environmental movement
- Monitoring: Sound baseline of the environment, resource use, actors and institutions
- Learning: Vision translated into achievable, measurable targets that can be incorporated into the business case for investment
- Evaluation: Investors will evaluate the business case using their detailed procedures; more than one investor likely

Simon: Investment Portfolio Manager

Simon manages a portfolio of projects for a regional development bank. His portfolio totals \$20 million per year in investment on resilience in the private sector. Shareholders in the bank expect the portfolio to adhere to international good practice and safeguards. However, Simon has considerable scope to define investment strategies and modes. He knows that 'return on investment' will be a major factor in the shareholders' decisions to replenish his fund. Indeed, he is at a stage in his career where he also wants to see outcomes and impacts that justify the investment, and perhaps more importantly the time and effort he spends in 'making things happen'.

- Transformational Leadership: Complicated with some features of complex context as shareholders are looking for innovative solutions to complex challenges, with strategies and procedures to demonstrate value-for-money
- Monitoring: Ability to interweave three stories, from the efficiency of his team to the outputs and outcomes of each project and scaling up to sectoral change and major impacts
- Learning: Sifting through the many stories for robust and enduring pathways that hold promise for impacts beyond the project and even portfolio time line
- Evaluation: Many stakeholders will be involved in evaluating success

Charlotte: Drought emergency response officer

Charlotte has been thrust into the limelight! She has been a technical analyst focusing on vulnerability and early warning systems in Government. In the past few months, a major drought has converted 'normal' landscapes to parched fields and dry reservoirs. She has been assigned to the Emergency Management Team and the national coordinator for the drought response. Drawing upon her earlier work, she is leading the coordination with the private sector, predominately large milk producers and eco-tourism operators. Personally, she

is concerned as well for the many small and micro enterprises but doesn't have the resources to engage with them directly.

- Crisis Response: A Complex regional environment has been pushed into Chaos where few management processes are working and emergency procedures dominate an ad-hoc response
- Monitoring: Quick snapshots of impacts that need urgent attention
- Learning: Operational priority setting given limited resources and very little time for consultation or analysis
- Evaluation: Someone will do a post-hoc deconstruction of the disaster, but it is not her concern!

Jean: Civil society leader

Jean cares. She took early retirement at the age of 50 and set up a local NGO to make a difference in her region. The NGO has core values of reducing poverty, enabling shared decision making and restoring sustainable environments. Speaking truth to power is her strength, with her many connections throughout the elite in her country. However, facts are more convincing than rhetoric and Jean values transparency and accountability in her own work. Getting the evidence right is paramount; even if it makes it harder to achieve her vision. She sees the current drought as a human-induced disaster. Response strategies must get to the roots of the causes in poverty, poor land use regulation, and investment decisions that short-change the value of environmental services.

- Transformational Leadership through Crisis Response: A complex context with the many competing interests and mixture of short-term crisis management and long-term enabling of social, economic and institutional change.
- Monitoring: Public access to high quality information
- Learning: Interpretation of public, verified data that lays a common foundation for a diagnosis of the disaster and baseline for medium-term strategies to manage drought and resource risks in the future.
- Evaluation: Informal consensus on the narrative is sufficient although more empirical work would be expected over the coming decade when the crisis abates.

These short descriptions are rich pictures of people making decisions. They have their own personality and decision requirements—while capturing common needs for information (monitoring) and specific interpretation of data for their decision processes (learning). Evaluation is not a specific focus of these use cases, although they each have different expectations and requirements.

Our Approach: Levels of information

The range of private sector management (our typology from Management Process to Crisis Response) and the conditions in which investments are made (from Simple to Chaotic) help define the nature of MLE information that will be useful.

Our prototype must be used to be useful. It must be available to a wide variety of audiences. It must also be transparent in the lines of evidence and links from inputs to impacts.



...user driven information

Resilience is a system property of long-term pathways; that also applies within projects and individual stakeholders.

We propose to drive the MLE design from the library of Adaptation Use Cases. For each of the cells in the matrix above, a Use Case will represent a typical MLE actor. Linked to the Use Case are default settings for what is displayed and what MLE functions are enabled.

The levels of information include:

- Sectoral and regional information: accessible to all
- Project targets and baseline: accessible to most users within the projects' stakeholders
- Project milestones and completion of internal outputs: access restricted to project team; easily exported in quarterly and annual management reports with wider distribution
- Project narratives and internal reflection: limited to project team although easily available for editing in project deliverables

Our Approach: Selecting KPIs

The growing number of frameworks and reviews of how to measure adaptation and resilience has not led to an matching growth in detailed evidence on the specific use of Key Performance Indicators (KPIs). We intend to put together a data base of KPIs that are commonly identified. In the first instance, the data base will make it easy for a project officer to choose a suitable KPI. As part of a learning platform, we hope the information in the data base will be expanded with lessons learned, case experiences and critical thinking from stakeholders.

...KPIs

A typology and examples of KPIs helps design effective MLE systems.

The initial data table is intended to be based on a knowledge typology:

- Purpose of the KPI, often related to a continuum from input verification to outcomes and measurement of impacts.
- Relevance of the KPI to our continuum of adaptation, especially the extent to which it support transformational leadership
- Generic or stylized KPI
- Examples of actual KPIs used for different sectors
- Level of effort required to work with the KPI: a qualitative score
- Private sector management systems: extent to which the KPI is easily embedded in existing information systems

To illustrate the kinds of KPIs identified for measuring resilience, the following list is from DFID's BRACED project:ⁱ

1. Number of people dying/injured/requiring emergency assistance/livelihood damage from climate related disasters (disaggregated by gender, caste/ethnicity etc.) and related to severity and frequency of shocks
2. Economic and financial losses of infrastructure (disaggregate by public and private sector) and income (disaggregated by gender, caste/ethnicity etc.) and related to severity and frequency of shocks

ⁱ Nick Brooks, Eunica Aure and Martin Whiteside. February 2014. Assessing the impact of ICF programmes on household and community resilience to climate variability and climate change. Draft Report to DFID (released to BRACED applicants). London: Evidence on Demand, CEIL-PEAKS, HTSPE and IMC Worldwide.

3. State of the environment (increasing/decreasing ability to provide environmental services and mitigate shocks)
4. Qualitative assessment from sentinel affected individuals on changes to experienced vulnerability, warning, disaster response and ability to recover (disaggregated by gender, caste/ethnicity etc.) and the reasons for change (or lack of change)
5. Number of people whose main livelihood(s) (crop land, livestock, other) is managed using climate-resilient practices as a result of support
6. Number of people covered by private, 3rd sector and state resilient service provision including markets) as a result of support
7. Number of people with access to ecosystem services which are stable and climate resilient as a result of support
8. Number of people covered by appropriate risk reduction investment (infrastructure and capacity) in place to priority climate related (and other) disasters as a result of support
9. Number of people with good-enough access to climate related/other early warning as a result of support
10. Number of people with access to good enough climate resilient WASH (water, sanitation and hygiene) as a result of support
11. (Number of people with access to good-enough social protection in time of acute need/disaster
12. Number of people with adequate climate resilient 'buffer capacity' (assets, savings, food stocks, social capital, insurance) as a result of support
13. Number of people covered by good enough adaptation/resilience policy which results in improved implementation practice as a result of support

Prototype MLE Dashboard

The prototype MLE system comprises a Dashboard with access to supporting Apps in GCAP's Adaptation Space. The Adaptation Space (aSpace) is a set of modules and applications that can be configured for a client as a proprietary and protected workspace. The client's users have different roles in the workspace (from public browsing to system configuration). All data tables in the workspace are confidential to the client.

The MLE Dashboard is designed as a sequence of panels, from a general understanding of the context to specific indicators and performance indicators for the project.

The concept of the Dashboard is shown in the figure—as the system is developed the configuration and style is likely to be adapted somewhat.



The Header shows the region/country/sector and short title for the project. The top right indicates the category of the MLE context:

- Management Process
- Multistakeholder Market
- Transformational Leadership
- Crisis Response

The top of the MLE Dashboard focuses on the context of the project and the focus on MLE based on the project. These panels are:

1. Adaptation Use Case and MLE role. The content of the Dashboard and access to some of the underlying data depends on the role of the user (assigned by the workspace system administrator) and the Use Case. Use Cases are a means to focus the aSpace modules on users' requirements.
2. Infographic for the sector. A synopsis of key information related to the sector and project is presented here—click for a full screen view.
3. Climate risk envelopes. At a regional level, the driver of warmer temperatures is clear while risks in precipitation dominate the next decade. Initially, these will be uploads of graphics from the IPCC AR5 report. We are exploring having direct links to the CMIP5 archive at this regional level.

4. Sector statistics show time series of a few key indicator related to the project. For instance, Agricultural GDP is relevant for major commodity investments. A library of key indicators at the country level is being developed—the workspace manager would be able to choose stats that are relevant to the project.
5. Recent climate events. This table presents a summary of the major impacts of weather-related extreme events in the country. It will be based on global data sets initially, although the workspace manager can include other data in the table as well.

The lower panels shift from the regional-sectoral view to the project's specific activities:

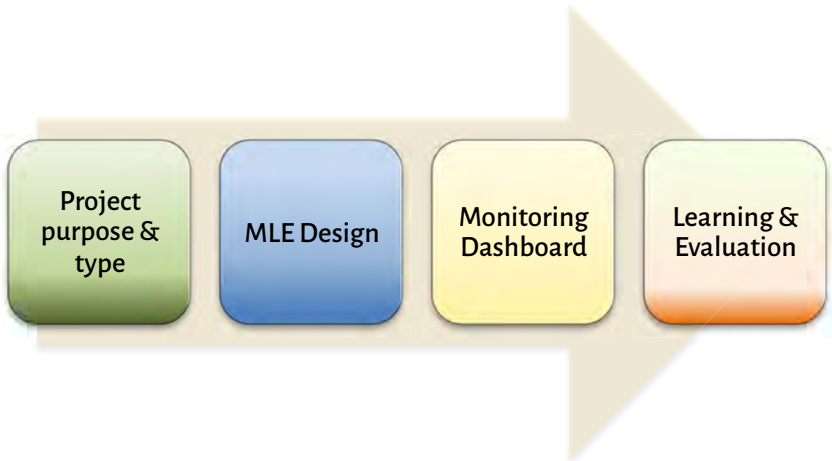
6. Timeline of project milestones. The major milestones are a foundation of the project's performance. The Dashboard captures the extent to which each milestone has been completed.
7. KPIs. The key indicators of resilience are shown in this table with an assessment of the extent to which they have been achieved.
8. Qualitative MLE rating. A simple scorecard presents up to 8 benchmarks of resilience in the columns and a 'fuel gauge' of what the project expects to achieve and performance to-date.

The footer shows the data of the most recent update and the user log-in. This provides part of the document trail if the user saves a snapshot of the Dashboard for reporting in other systems or formats.



We are at the creative stage of framing MLE concepts and designing functional requirements for a working prototype. The following graphics suggest how the platform may operate.

The MLE Platform covers four processes:



At the design stage, the project purpose and type is identified using scorecards for the context and management mode:



- Rationale & sectoral context
- Purpose
- Type of investment

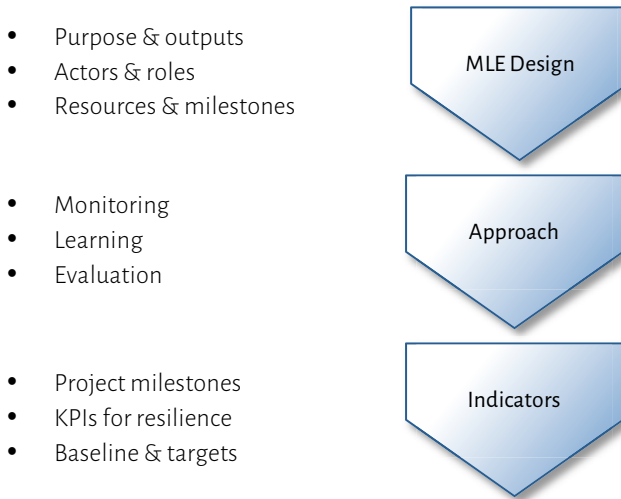


- Scorecard for sector
- Management mode
- Socio-institutional context

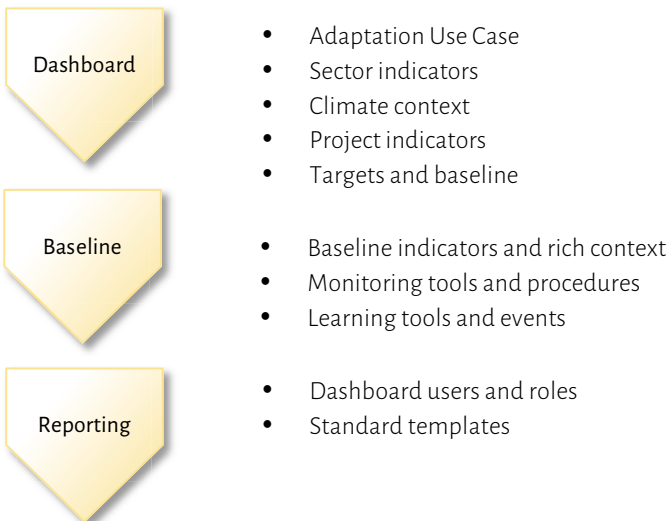


- Purpose of MLE for resilience
- Lead actors in project MLE
- Level of effort

Design of the platform links the Theory of Change to indicators and the baseline:



The Dashboard facilitates operational monitoring and reporting:



The Dashboard lays the foundation for learning and evaluation:

Operation of
learning
processes and
events

Evaluation of
outcomes and
impacts

Synthesis of
project impacts
across
investment
programme

Work plan for developing a prototype MLE platform

This stocktaking and inception report brings together a considerable effort over the past several years, with a sharp focus on the PROADAPT processes. Ideally, the short extension to the Honduras and Nicaragua project will seed ideas and support for a much expanded learning process across the PROADAPT stakeholders and with development partners in the region.

The work plan for the remainder of the project is quite focused.

...work plan

A prototype MLE Dashboard will be reviewed in Washington.

Action 1. Understand the mission, context and scope for private sector investment in PROADAPT.

- ☐ Review this stocktaking report in a series of dialogues with the GCAP/Grupo Laera team and PROADAPT staff and partners (early October)

Action 2. Review relevant Theories of Change and indicators of resilience within the context of FOMIN projects.

- ☐ Compile a list of resilience indicators used in existing or proposed PROADPAT projects and place them in the context of MLE situations in the matrix presented above (early October)

Action 3. Review KPIs commonly found in resilience frameworks and develop project-based M&E indicators for the concept notes in Honduras and Nicaragua.

- ☐ Draft concept notes (end September)
- ☐ Review proposed KPIs (early October)

Action 4. Categorize PROADAPT projects depending on the context for MLE.

- ☐ Screen existing and proposed projects to assign them to one of the four classes (Management Process to Crisis Response) (end September)
- ☐ Adapt existing use cases based on the concept notes if further detail is required (early October)
- ☐ Develop scorecard for screening project MLE context (November)

Action 5. Design an MLE Dashboard and supporting applications as a prototype system. Drawing upon the learning and analysis in Actions 1 to 4, the Dashboard shows how the platform would function and its value in achieving PROADAPT's mission.

- ❑ Create MLE workspace in GCAP's online knowledge management service (aSpace) (end August)
- ❑ Design panels in a prototype Dashboard (mid September)
- ❑ Create supporting applications, including visualizing indicators (end September)
- ❑ Link Use Cases and Scorecards to support MLE Dashboard (mid October)
- ❑ Create Dashboards for two PROADAPT project concepts: Nicaragua (cacao) and Honduras (tourism) to illustrate the MLE framework (early November)

In addition, we will:

- ❑ Document the MLE Framework, including a presentation of MLE within the PROADAPT context (end October)
- ❑ Present the Framework and Dashboard for review among PROADAPT stakeholders in roundtables in Washington (early to mid November)
- ❑ Revise the Framework document, including a guide to the Dashboard design (end-November)