

NATURE-BASED SOLUTIONS FOR ADAPTATION

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This brief explores how people-centered Monitoring, Evaluation & Learning (MEL) strengthens the credibility and impact of Nature-based Solutions (NbS) for climate adaptation. Drawing on Global EbA Fund and Partnering for Climate experiences, the brief highlights practical approaches for generating meaningful credible and decision-relevant evidence across environmental, social, and economic dimensions – showing how participatory MEL enables adaptive learning, local ownership, and scalable, resilience-building outcomes.

PROVING THE PROMISE: Effective, participatory Monitoring, Evaluation & Learning for NbS for climate adaptation outcomes

The Nature-based Solutions for Climate Adaptation: Monitoring & Impact Evaluation ([NAbSA](#)) initiative represents a critical effort to enhance climate resilience across Sub-Saharan Africa through gender-responsive, biodiversity-informed interventions. As NAbSA works with 19 on-the-ground projects across 30 countries and 12 ecosystems, lessons directly from the ground, alongside lessons from the [Global EbA Fund](#)'s portfolio, demonstrate how experiential learning, capacity building, and robust monitoring systems inform adaptive decision-making and amplify adaptation outcomes and build enduring support for Nature-based Solutions (NbS) for climate adaptation.



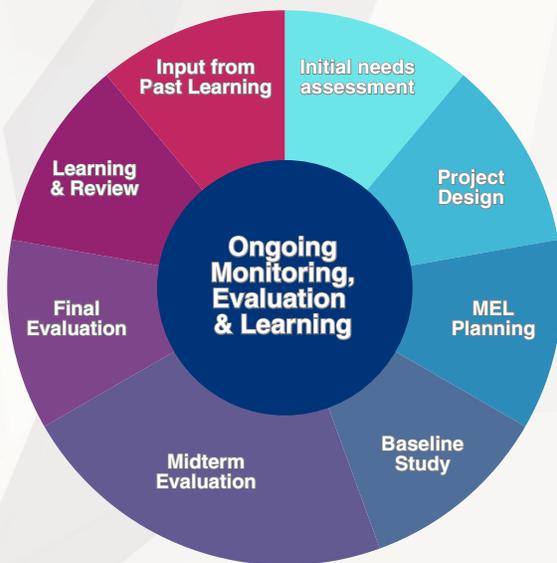
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THE POWER OF EXPERIENTIAL LEARNING

In the context of climate adaptation, where outcomes are often non-linear, context-specific, and realized over long time horizons, experiential learning plays a critical role in ensuring that Monitoring, Evaluation & Learning (MEL) systems remain relevant, credible, and responsive to change.

Experiential learning opportunities and capacity building initiatives serve as catalysts for transforming MEL from bureaucratic requirements into meaningful tools for adaptation success.

For NAbSA's network operating across diverse contexts, this approach aligns directly with the initiative's emphasis on mutual learning, measurable impact, and amplifying the voices of women and marginalized groups in climate action, while ensuring that MEL findings actively inform adaptive decision-making across scales.



The MEL Cycle

Experiential learning opportunities and capacity building initiatives serve as catalysts for transforming MEL from bureaucratic requirements into meaningful tools for adaptation success. When project partners, local participants, and community leaders understand how collected data directly links to climate adaptation outcomes, several critical benefits emerge:

Enhanced MEL Effectiveness:

When communities understand the link between monitoring activities and tangible climate resilience outcomes, they become active partners rather than passive data providers – improving data quality, relevance, and accountability. Inclusive MEL approaches intentionally surface differentiated climate impacts across gender, age, disability, and livelihood groups, ensuring that marginalized voices shape what is monitored and how success is defined. This shared ownership fosters trust, strengthens the interpretation of results, and allows adaptation outcomes to be assessed against local climate realities, risks, and decision-making processes, leading to more equitable and context-responsive NbS outcomes.

Sustained Institutional Support:

Capacity building embeds MEL within institutional systems, creating context-specific knowledge that extends beyond individual staff members or political cycles. By institutionalizing learning processes and feedback loops, adaptation initiatives are better able to adjust strategies in response to emerging climate risks, new evidence, and community priorities. This is particularly critical in settings marked by high staff turnover, shifting mandates, or evolving political priorities, where continuity and adaptive management are essential for long-term resilience.

Empowered Local Leadership:

As local leaders develop monitoring competencies, they gain the technical credibility needed to advocate for sustained investment and resources for NbS. This capacity strengthens their influence in local planning and policy dialogues, enhances the legitimacy of NbS interventions, and supports the formal adoption, scaling, and replication of inclusive and evidence-based practices.

MEASURING WHAT MATTERS: PEOPLE-POWERED MEL IN PRACTICE

Measuring climate adaptation is challenging, as change is often incremental, context-dependent, and shaped by multiple factors. Participatory MEL is valuable because it captures contributions to resilience and adaptive capacity rather than narrow attribution. NAbSA partners' and Global EbA Fund's case studies show that how adaptation is monitored matters as much as what is implemented. Effective, participatory MEL demonstrates the real-world impacts of NbS while keeping interventions grounded in local realities, offering practical lessons for community-centered, evidence-based climate action.



In **Mexico**, [WWF](#) implemented a Global EbA Fund project to mainstream ecosystem-based adaptation (EbA) in small-scale livestock value chains, illustrating the power of multi-dimensional monitoring. Participatory workshops with ranchers co-designed MEL activities, identifying environmental, productivity, and economic indicators embedded in a digital platform for data collection and learning. This approach supported the conservation of 420 hectares of ecosystems and 207.5 hectares through seed banks, while tracking environmental, livelihood, and

productivity outcomes together. By linking ecological and socio-economic indicators, the project captured the full suite of adaptation co-benefits, demonstrated how NbS can enhance resilience, biodiversity, and livelihoods, and generated evidence for adaptive management and value-chain integration – all while reflecting real-world conditions and strengthening local ownership.



A similar emphasis on relevance and responsiveness underpins [EDF Philippines'](#) participatory monitoring efforts in the Coral Triangle. For this Global EbA Fund project, participatory monitoring was embedded into a pilot regenerative open-ocean seaweed farm, where local communities played a central role in developing three MEL instruments to monitor the effectiveness of EbA measures, with a focus on both ecological and economic performance. These plans included protocols for tracking seaweed growth rates and yield, key water parameters, and biodiversity indicators. By embedding local knowledge and priorities into MEL processes, the project ensured that data remained meaningful to those most affected by climate change. Monitoring results were then used to adjust practices and priorities over time,

reinforcing MEL as a tool for continuous learning rather than one-off reporting.

The [ReSea Project](#) in **Mozambique**, implemented with Mission Inclusion and IUCN, demonstrates how participatory, gender-responsive MEL can uncover social dynamics that shape climate adaptation. In Inhassoro District, community consultations, mentorship, and assessments revealed how structural barriers – limited confidence, uneven knowledge of Locally Managed Marine Areas (LMMAs) and Marine Protected Areas (MPAs), and exclusion from decision-making – affect governance. By integrating the perspectives of women, youth, and vulnerable groups, the project identified who can influence decisions, benefit from marine governance, or be excluded. These insights guided targeted capacity building and dialogue, strengthened women’s leadership, and supported early shifts toward more equitable Fisheries Co-Management Committees, showing how people-centered MEL can illuminate hidden constraints, inform adaptive actions, and reinforce inclusive NbS governance.

In **Ghana’s Volta Delta**, another Global EbA Fund initiative on mangrove restoration is demonstrating how capacity building and technology can reinforce one another. [ECU](#) is training community members and practitioners to assess EbA potential, supported by a web-based spatial assessment tool that ranks mangrove areas by restoration potential. This includes the use of LiDAR-equipped drones for mangrove monitoring, as well as participatory mapping and community-led data entry of climate hazards and ecosystem changes, with 60 community members

conducting the mapping exercises. By translating complex environmental data into accessible, decision-relevant insights, the project shows how digital platforms can democratize evidence generation. These insights support decision-making at both community and national levels, demonstrating how technology-enabled MEL can bridge local knowledge and policy-relevant analysis.



The Conservation Agriculture+ (CA+) experience from the [Nature+ project](#) also highlights the value of monitoring systems that support learning rather than compliance alone. Tracking changes in soil health, crop diversity and household outcomes enabled farmers and partners to interpret results collectively, adjust practices over time, respond to emerging constraints, and strengthen successful strategies. Simple, farmer-accessible indicators – such as soil condition, water infiltration and crop performance – proved particularly powerful in building trust in NbS approaches and sustaining long-term adoption.

What gets in the way – and what helps	
Low literacy rates	<ul style="list-style-type: none"> • Visual tools • Peer-to-peer learning • Oral/interpretive data collection
General capability gaps in data collection and analysis	<ul style="list-style-type: none"> • Targeted capacity building & mentorship • Simple, accessible tools • Ongoing coaching embedded in project cycles
Data fatigue	<ul style="list-style-type: none"> • Fewer, more meaningful, SMART¹ indicators • Clear use-cases for data • Visible links between data and decisions
Staff turnover	<ul style="list-style-type: none"> • Community-owned monitoring roles • Institutionalized learning systems • Shared documentation practices
Overburdening communities with data collection	<ul style="list-style-type: none"> • Fewer, decision-relevant indicators and clear feedback loops
Tension between community-driven data and standardized donor requirements	<ul style="list-style-type: none"> • Blended MEL approaches that combine context-specific, community-defined indicators with core standardized metrics for comparability, accountability, and reporting
Low confidence among marginalized groups to engage in MEL or governance	<ul style="list-style-type: none"> • Mentorship, peer-to-peer support, and facilitated reflection sessions • Safe reflection spaces where women can discuss barriers and progressively practice speaking up
Norms that undervalue women’s knowledge	<ul style="list-style-type: none"> • Community dialogues, gender-responsive questioning that surfaces hidden expertise

¹ SMART indicators are Specific, Measurable, Achievable, Relevant, and Time-bound indicators that are used in MEL ([Source](#)).

RECOFTC's Trees4All initiative in **Thailand** further reinforces the value of hands-on, community-based monitoring. Through the Trees4All initiative, smallholder farmers are given financial incentives to replace their monoculture crops with native and commercial trees. Under this Global EbA Fund project, RECOFTC trained 29 smallholder farmers to track tree growth, transforming monitoring into an experiential learning process. Through direct interaction with tools and data, farmers deepened their understanding of how trees support climate adaptation and strengthened their capacity to continue monitoring and adjusting practices over time, ensuring sustainable tree management. Training in participatory MEL helps smallholder farmers become more informed practitioners, supporting stronger adaptive capacity at both the household and community level.



Farm Radio International's **On-Air for Gender-inclusive NbS project** integrates community diaries into its MEL system, enabling communities in 44 sites across **six sub-Saharan African countries** to track and respond to climate events. The diaries help communities better understand climate hazards and their differentiated impacts –

particularly on women and persons with disabilities – and assess their own adaptive capacities over time. Led by trained facilitators working with traditional institutions, the information-reflection-action process places communities at the center of monitoring and adaptation, while also generating community-level insights that inform and strengthen the project's radio programming.



Together, these experiences show that participatory MEL is not just a technical requirement but a strategic enabler of effective nature-based adaptation. By integrating multiple dimensions of change, centering local knowledge, addressing real-world constraints, and investing in community capacity, monitoring generates evidence that is credible and actionable. Closing the loop between data, learning, and adaptive decision-making, NAbSA partners demonstrate how MEL can move beyond accountability to empowerment – strengthening local ownership, improving outcomes, and building confidence in NbS as a people-powered approach to climate adaptation.

PUTTING PARTICIPATORY MEL TO WORK: TOOLS, INDICATORS, AND REAL-WORLD LESSONS

To put these principles into practice, projects need indicators that capture meaningful quantitative and qualitative changes across ecosystems, livelihoods, and communities.

Using some examples of “ready-to-adapt” indicators, this section illustrates how monitoring can capture meaningful changes across ecosystems, livelihoods, and social systems, helping teams prioritize learning and inform adaptive decisions rather than maximize indicator volume.

Sample Indicators	Indicators
Environmental & biodiversity	<ul style="list-style-type: none"> • Soil workability (Hoe test) • Rate of success in mangrove regeneration • Number of certificates issued to allow reforestation in designated sites by sex or type of household (UNDP 2019)
Livelihoods & food security	<ul style="list-style-type: none"> • Proportion of population who decreased food intake as a result of climate change, by sex (UNDP 2019) and household composition yield stability • Proportion of population who changed or lost their job as a result of climate change, by sex and formality • Number of different incomes/income diversification, by household
Social, governance & equity	<ul style="list-style-type: none"> • Average number of hours spent on paid and unpaid work in the sector combined (total work burden) by sex (UNDP 2019) • Share of women among owners or rights-bearers of agricultural land, by type of tenure (UNDP 2019) • Level of confidence among women to participate in governance discussions (self-reported) • Number of governance spaces integrating women into planning or decision-making roles
Adaptive capacity	<ul style="list-style-type: none"> • Percentage of male and female farmers who receive information from a climate information system (UNDP 2019) • The ratio of female to male mediators as designated communicators across the districts (UNDP 2019)

TIP! Gender-responsive monitoring: Simple questions that revealed power dynamics or workload shifts

Real-world contexts often reveal nuances standard metrics miss. Adding gender-responsive questions to monitoring captures hidden burdens, power dynamics, and inequities, helping teams adapt interventions and track shifts in influence, workload, and benefits over time. Here are some examples of such questions:

- “Who decides how this land/resource is used after the project activities?”
- “If this activity stopped tomorrow, who would feel the impact first?”
- “Who has time to attend monitoring meetings – and who does not?”
- “Who feels confident speaking during committee meetings?”
- “What prevents you from participating fully?”
- “What tasks were added to your day because of this project?”
- “Whose knowledge is acknowledged?”
- “Who benefits most during a bad climate year?”

When the ReSea Project (Mission Inclusion) asked these questions, it revealed women’s limited confidence, undervalued knowledge, and restricted influence in marine governance in Inhassoro District, Mozambique. These insights prompted targeted mentorship and dialogue, demonstrating how the right questions can transform MEL into a tool for exposing inequalities, guiding adaptive action, and strengthening inclusive, locally led governance.

Gender-responsive monitoring does not require complex tools. Collecting the right data, asking the right questions, and acting on what emerges is what turns participatory MEL into a mechanism for equitable, climate-resilient outcomes. More gender-responsive environmental indicators can be found here ([UN Women n.d.](#)).



Returning to the case of Nature+’s CA+ programming, their MEL approach relied on farmer-co-developed indicators such as soil workability, water infiltration, and crop diversity, which were validated through scientific testing and used alongside participatory livelihood and food security indicators. For instance, CA+ used the hoe test to measure soil workability, with the corresponding indicator being “ease of hoe penetration at multiple points in a field.” Farmers themselves measured how hard the soil feels and the resistance to digging, which was found to be directly linked to labor burden, root growth, and moisture retention. The results indicated a strong correlation with laboratory soil respiration (Solvita test). CA+’s approach demonstrates how farmers’ subjective assessments accurately detected real biophysical change, elevating these tools from “anecdotal” to credible MEL indicators and processes.

Once indicators and key questions are defined, selecting appropriate tools and methods is critical for gathering reliable, actionable data. The following cheat sheet highlights participatory approaches, technology-enabled methods, and practical guidance on skills, costs, and example

applications, enabling practitioners to match monitoring approaches to their project context.

TOOLS & METHODS CHEAT SHEET

Selecting appropriate monitoring tools requires balancing methodological rigor with local capacity, cost, and the intended use of data for learning and decision-making. See table on next page.

Embedding hands-on MEL capacity building across activities can ensure that partners not only collect data, but use it effectively to inform decisions and improve outcomes. By fostering a culture of collective learning, NAbSA seeks to amplify the impact of individual projects through shared experiences and insights. Creating cross-project learning platforms allows partners to distill and exchange monitoring innovations, practical solutions, and lessons learned, building a dynamic community of practice and positioning

IUCN as both a knowledge broker and standard-setter for credible, participatory MEL in NbS for climate adaptation. This collaborative approach strengthens both technical capacity and adaptive decision-making, ensuring that successes – and challenges – are shared widely, reinforcing evidence-based, participatory approaches to NbS at scale.

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Method	What is it best for?	What are the skills required?	What is the time & cost intensity?	Example case
Comparative farm sampling	Demonstrating practice-level effectiveness and validating farmer knowledge in complex, real-world systems.	Integrated skillset & mixed-methods evaluation, multi-stakeholder coordination.	Moderate intensity, front-loaded. Implemented over multiple seasons and years.	<u>Nature+ project</u>
Community-based GPS coastal monitoring registry	A tool based on active research that enables communities to contribute more effectively to decision-making.	How to write for note-taking and use of a smartphone to scan and share data and the use of GPS.	Monthly data collection, one day per month. Interviews with organizations (Maltese Epis, Casamance region) may take place over two working days.	<u>SEDAD project</u>
Community diaries	Capturing community-defined, gender- and disability-sensitive insights on climate impacts and adaptive capacity over time, and linking monitoring directly to local action and learning.	Inclusive facilitation and basic participatory monitoring skills, with sensitivity to gender, disability, and local governance structures.	Low to moderate, requires upfront training and facilitation support, but relatively low ongoing costs once community processes are established.	<u>On-air for gender-inclusive NbS</u>
uMap participatory mapping	Creating shared, customized maps centralizes spatial information to improve coordination across partners and countries, visualize geographic synergies, and build a common understanding of project coverage and activities.	Basic digital literacy; ability to navigate web-based interfaces; minimal training needed to create layers, upload simple datasets, and annotate maps.	Low to moderate, depending on the geographical scope and the level of detail desired. Free to use.	<u>ReSea Project by Mission inclusion</u>

Tools and Methods Cheat Sheet