

Monitoring and Evaluation Plan

Moldova Green Shield: Enhancing Resilience through Ecosystem-based Adaptation

Executed by the Republic of Moldova, represented by the Ministry of Finance and acting through the Ministry of Environment, with implementation support and oversight provided by the World Bank acting as Accredited Entity to the Green Climate Fund

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1. Introduction

This Monitoring and Evaluation Plan (MEP) sets out the framework for monitoring, reporting, evaluation, and learning for the proposed Green Climate Fund (GCF) project “*Moldova Green Shield: Enhancing Resilience through Ecosystem-based Adaptation*”. It provides the basis for tracking implementation progress, assessing results, supporting adaptive management, and ensuring accountability in accordance with the World Bank reporting requirements as Accredited Entity.

This MEP is an annex-level framework document. A more detailed operational M&E manual will be prepared during the inception phase of the project and will further specify indicator protocols, baseline methodologies, institutional responsibilities, data flows, quality assurance procedures, digital data management arrangements, and reporting templates.

The MEP is designed to monitor progress at output, outcome, and impact levels, consistent with the project’s Theory of Change, Results Framework, and relevant adaptation and mitigation indicators. It also supports assessment of broader institutional, policy, and learning effects associated with ecosystem-based adaptation (EbA) implementation in Moldova.

The Republic of Moldova, represented by the Ministry of Finance (MoF) and acting through the Ministry of Environment (MoE), will be responsible for project execution, with day-to-day coordination and M&E implementation support provided through a Project Implementation Unit (PIU). The World Bank, as Accredited Entity, will provide implementation support and oversight, quality assurance, and reporting to the GCF in accordance with the Funded Activity Agreement (FAA).

The monitoring, evaluation, and learning system is intended not only to support accountability and reporting, but also to strengthen evidence-based decision-making and adaptive ecosystem restoration management under changing climatic conditions.

The objectives of this MEP are to:

- a) provide a structured basis for annual planning and results tracking; monitor implementation progress and achievement of outputs and outcomes;
- b) generate reliable information for World Bank reporting and project management decision-making;
- c) support adaptive management of restoration and resilience-building interventions;
- d) assess project performance through independent evaluations; and
- e) capture lessons learned, good practices, and evidence to support replication, scaling up, and policy uptake.

This MEP will be reviewed and refined during project inception to ensure full alignment with the final implementation arrangements, updated component structure, and detailed indicator methodologies.

2. Monitoring and Evaluation Arrangements

The project’s monitoring and evaluation arrangements will be structured to ensure timely data collection, quality assurance, results reporting, and evidence-based adaptive management throughout implementation.

The MoE will be responsible for overall project execution. Day-to-day coordination of M&E activities, including data compilation, verification, storage, and internal reporting, will be carried out by the PIU, working in coordination with supporting partners and relevant technical institutions. A dedicated M&E Specialist within the PIU will serve as the primary person accountable for data management, results framework tracking, and internal reporting throughout the project lifecycle.

The World Bank, in its role as Accredited Entity, will oversee implementation performance, review the quality and consistency of monitoring information, ensure compliance with applicable reporting requirements under the FAA, and submit required reports to the GCF. Mid-term and final evaluations will also be commissioned.

A project-wide baseline assessment will be completed during the inception phase to establish reference values for all relevant output and outcome indicators. The baseline will draw on official statistics, project preparation analyses, geospatial data, field verification, and targeted surveys, as appropriate. Baseline findings will be used to confirm indicator values, refine data collection protocols, and support early implementation planning.

Supporting partners and contracted service providers responsible for specific activities will generate primary monitoring data for their respective areas of work, using agreed protocols and reporting templates. All supporting partners and contracted service providers are required to submit monitoring data to the PIU M&E Specialist within timeframes to be established during the project inception phase. The M&E Specialist will consolidate and verify these data, ensure data quality assurance (DQA) protocols are applied consistently across all data sources, and maintain the project M&E database.

The detailed operational M&E arrangements, including indicator protocols, responsibilities, reporting calendars, and quality assurance procedures, will be finalised during project inception and reflected in the Project Operations Manual (POM).

Monitoring activities will also support tracking of environmental and social safeguards performance in accordance with the Environmental and Social Management Framework (ESMF), including implementation of mitigation measures, stakeholder engagement effectiveness, and grievance redress mechanism functionality.

3. Overview of Planned Intervention and Monitoring Scope

The project supports implementation of climate-resilient ecological infrastructure restoration and various EbA interventions across selected production landscapes in southern Moldova (13,000 ha). Monitoring activities under this MEP are designed to track implementation progress, ecological performance, institutional strengthening outcomes, and adaptation co-benefits associated with the principal intervention categories summarized below.

Component	Intervention type	Indicative area or scale	Monitoring relevance
Component 1: Institutional Capacity Development and Data-Driven Planning	Climate-informed planning & technical preparation, modelling, FRM systems, institutional strengthening	SDR-wide and district level	Institutional capacity and planning indicators
Component 2: Climate-resilient ecological infrastructure restoration in production landscapes (13,000 ha)	Afforestation/Reforestation	5,000 ha	Survival rates, carbon and adaptation indicators
	Forest vegetation rehabilitation (maintenance & ANR)	3,500 ha	Ecological condition and resilience monitoring
	Shelterbelt restoration (agricultural lands)	500 ha	Connectivity and agricultural resilience indicators
	Watershed and Floodplain Restoration	2,000 ha	Water regulation and erosion reduction indicators
	Silvopastoral systems	2,000 ha	Land management and adaptive livelihood indicators
Component 3: Community Engagement, Climate-Resilient Livelihoods, and Local Stewardship Systems for Ecosystem Restoration	Community stewardship and participatory restoration support	Multiple sites (according to EbA intervention)	Participation and adaptive capacity indicators
Component 4: Project Management, Monitoring and Evaluation	Project management and M&E systems	Project-wide	Reporting and learning indicators

4. Monitoring and Evaluation System

The project M&E system is designed to support systematic tracking of implementation progress, verification of results, compliance with World Bank reporting requirements, and adaptive management of EbA interventions throughout the project lifecycle. It will integrate routine implementation monitoring, geo-referenced tracking of intervention areas, structured beneficiary and stakeholder feedback mechanisms, safeguards monitoring, and periodic evaluation.

All monitoring activities will be aligned with the project Results Framework and Theory of Change. It will consider the monitoring of community stewardship arrangements, participatory restoration planning processes, climate-resilient livelihood support activities, and locally embedded maintenance systems associated with planned interventions.

The monitoring system will also support structured tracking of safeguards implementation in accordance with the ESMF and Gender Action Plan (GAP), including monitoring of mitigation measures, stakeholder engagement processes, and grievance redress performance where applicable.

Monitoring activities will also support assessment of climate-related stress factors affecting restoration performance, including drought conditions, seasonal climatic variability, extreme weather events, and associated impacts on ecosystem establishment and resilience outcomes. Where relevant, monitoring results will inform adaptive adjustments to restoration timing, species composition, maintenance regimes, and implementation sequencing.

Data collection will include geo-referenced information on restoration sites and intervention areas, digitised records related to forest reproductive material (FRM) production and planting implementation, and structured surveys where relevant to assess beneficiary reach, institutional strengthening outcomes, and community participation. These datasets will be systematically gathered, verified, and consolidated by the PIU, all in coordination with the MoE and supporting partners and relevant technical institutions.

Where appropriate, monitoring of restoration progress, vegetation establishment, land-use change, and ecosystem condition trends may be supported through analysis of satellite imagery, remote sensing products, and spatial monitoring tools to complement field verification activities.

Reporting mechanisms will include preparation of Annual Progress Reports (APRs) in accordance with the provisions of the FAA. Monitoring information generated through implementation will also support preparation of supervision documentation, evaluation inputs, safeguards reporting, and knowledge products throughout the project lifecycle.

Mid-term and independent final evaluations will provide structured assessments of project performance, implementation efficiency, effectiveness of EbA interventions, and progress toward intended outcomes and impacts.

The M&E system will also support monitoring of gender responsiveness, stakeholder engagement processes, and environmental and social safeguards implementation in accordance with the ESMF and the GAP. Where relevant, gender-disaggregated information and stakeholder feedback will inform adaptive implementation adjustments.

Project monitoring data will be maintained within a structured digital monitoring platform managed by the PIU. The platform will support indicator tracking, spatial monitoring of intervention sites, documentation of implementation progress. The system will be designed to ensure traceability of data sources, consistency of indicator calculations, and long-term usability beyond the project implementation period.

Monitoring outputs, spatial datasets, and selected non-sensitive implementation information may be made accessible to relevant institutions and stakeholders through appropriate institutional platforms, subject to applicable data management and disclosure procedures.

To strengthen national capacity for monitoring and evaluation implementation, targeted training activities will be delivered for PIU staff, supporting partners, and relevant technical institutions. These activities will focus on indicator tracking methodologies, geo-referenced monitoring tools, safeguards monitoring integration, data quality assurance procedures, and use of the project's monitoring platform. Training will combine structured workshops with field-based practical exercises to support application of monitoring protocols under operational conditions.

The project will also promote structured participation of local stakeholders and community representatives in selected monitoring activities, particularly those related to restoration performance verification, stakeholder engagement processes, and beneficiary feedback. This participatory approach will strengthen transparency, support adaptive management, and contribute to long-term sustainability of project outcomes.

Data quality assurance procedures will be established during the inception phase to ensure consistency of indicator definitions, verification of geo-referenced monitoring information, traceability of data sources, and alignment of monitoring outputs with the project Results Framework. Data verification responsibilities will be defined across supporting partners and coordinated through the PIU.

5. Monitoring Plan

Monitoring under the project will be implemented as a continuous and structured process designed to assess implementation progress, track achievement of results indicators, and support adaptive management of EbA interventions. The monitoring framework will ensure that project outputs and outcomes remain aligned with the approved Results Framework and contribute to the intended strengthening of ecosystem resilience and climate adaptation capacity in targeted landscapes.

The monitoring process will pursue the following objectives:

- Track progress against project indicators at output and outcome levels, as defined in the Results Framework;
- Support early identification of implementation risks, operational bottlenecks, and seasonal constraints affecting restoration activities, enabling timely corrective action where necessary;
- Assess the effectiveness of EbA and restoration interventions in reaching target landscapes and beneficiaries;
- Support learning and knowledge sharing through documentation of implementation experience, good practices, and lessons learned; and
- Ensure compliance with monitoring and reporting requirements of the World Bank, national authorities, and project implementation arrangements.

For forest and agroforestry restoration interventions, survival rates below 70% after the first growing season or below 60% after the second growing season will trigger a technical review and preparation of corrective action measures. Corrective measures may include enrichment planting, species substitution, revised site preparation techniques, strengthened maintenance measures, or adjustments to implementation sequencing.

Monitoring activities will combine geo-referenced tracking of intervention areas, administrative implementation records, field verification visits, structured beneficiary surveys where relevant, and stakeholder feedback mechanisms. Monitoring data will be compiled and consolidated by the PIU in coordination with supporting partners and relevant technical institutions. Data quality assurance procedures will be established during project inception to ensure consistency of indicator definitions, traceability of data sources, and verification of geo-referenced monitoring information across supporting partners.

Where relevant, monitoring will also consider indicators related to ecosystem functionality, including vegetation structure, habitat connectivity, erosion reduction, hydrological stabilization, and regeneration dynamics associated with restoration interventions. Monitoring activities may also support assessment of biodiversity co-benefits associated with restoration interventions, including improvement of habitat conditions, ecological connectivity, and support for native species recovery where relevant.

Table 1 below summarises the principal monitoring data sources, collection tools, frequency of data collection, and institutional responsibilities aligned with the project Results Framework.

Table 1. Monitoring framework: data sources, tools, frequency, and institutional responsibilities

Monitoring	Data/Source	Collection Tool (Primary / Secondary)	Frequency	Results Framework Indicators Covered	Indicative Budget
Beneficiary and livelihood monitoring	Project beneficiary database; implementation records	Primary: Beneficiary registration database, livelihood beneficiary records, training attendance sheets, employment records, service provider reports and community stewardship agreement records. Secondary: PIU monitoring database, targeted beneficiary surveys (where required),	Baseline, Annual, Mid-term, Final	Core 2; Supplementary 2.1; SC 3.1; SC 3.2; Co-benefit 3	Monitoring integrated into Component 3 service provider contracts and PIU M&E budget.
Ecosystem restoration, climate and GHG monitoring	Restoration implementation database; geo-referenced restoration records	Primary: Restoration completion reports, restoration site inspections, field verification, ecological monitoring plots, National Forest Inventory data and hydrological monitoring records. Secondary: GIS analysis, satellite imagery, Natural Capital Accounting system, carbon assessments and GHG calculations using the approved methodology.	Annual	Core 1; Core 4; Supplementary 4.1; SC 2.1; SC 2.2; SC 2.3; Co-benefit 2	Monitoring integrated into Component 2 implementation contracts, technical supervision and PIU M&E budget.
Climate Information and Early Warning System monitoring	SHS operational database	Primary: SHS platform records, user registration database, SMS/mobile dissemination records, automated monitoring station records and system performance reports.	Annual	Supplementary 2.4; SC 1.3	Monitoring integrated into Component 1.3 implementation activities and SHS operational support.

Monitoring	Data/Source	Collection Tool (Primary / Secondary)	Frequency	Results Framework Indicators Covered	Indicative Budget
		Secondary: SHS operational reports, platform analytics and PIU monitoring database.			
Institutional capacity, planning and knowledge monitoring	Institutional records; project documentation	Primary: Capacity assessment reports, official adoption records, policy documents, institutional reports and training records. Secondary: PIU progress reports, Government publications	Annual	Output 1; SC 1.1; SC 1.2; Co-benefit 1; Core 5; Core 6 Core 8;	Included in PIU M&E budget.
Environmental, biodiversity, gender and safeguards monitoring	Environmental monitoring records; safeguards documentation	Primary: Ecological field verification, gender-disaggregated participation records, grievance records and safeguards monitoring reports. Secondary: GIS analysis, Natural Capital Accounting system, national environmental monitoring systems and World Bank implementation support reports.	Annual; Mid-term; Final	Environmental and biodiversity co-benefits, gender indicators and environmental and social safeguards reporting	Monitoring integrated into implementation contracts, PIU M&E budget and World Bank implementation support.

6. Adaptive Management and Decision Triggers

Monitoring under the project is designed to support adaptive management of planned EbA interventions throughout implementation. Monitoring results will be used not only for reporting purposes but also to inform operational decisions related to intervention design, sequencing, implementation approaches, and allocation of technical and financial resources.

The Project Steering Committee (PSC), based on monitoring inputs consolidated by the PIU, will periodically review implementation performance and authorise corrective actions where predefined thresholds or implementation milestones are not achieved.

Corrective measures may include adjustments to species composition, planting density, restoration techniques, site prioritisation, implementation sequencing, maintenance regimes, or scheduling of restoration activities in response to climatic variability, drought conditions, or site-level performance observations.

For forest and agroforestry restoration interventions, low survival rates will trigger a technical review and preparation of corrective action measures (e.g. replanting, enrichment planting, species substitution, improved protection and maintenance measures, or refinement of site preparation approaches).

Adaptive management decisions will be documented through supervision processes and reflected, where necessary, in updated annual work plans and implementation arrangements.

7. Evaluation Plan

The evaluation framework is designed to assess project performance, results, and impacts at key stages of implementation while supporting adaptive management, accountability, and learning.

Inception and Baseline Phase

At the start of implementation, the project will undergo an inception readiness review coordinated by the PIU, with oversight provided by the World Bank. This review will confirm the adequacy of implementation arrangements, safeguards systems, institutional coordination mechanisms, procurement readiness, and monitoring procedures prior to full-scale execution.

During the first year of implementation, a project-wide baseline assessment will be completed to establish reference values for all output- and outcome-level indicators included in the Results Framework. The baseline assessment will support detailed implementation planning and adaptive management by documenting site characteristics, restoration readiness conditions, species–site matching considerations, quality control procedures, cost structures, and stakeholder engagement conditions across intervention areas.

The baseline assessment will apply a mixed-methods approach combining document review, stakeholder consultations, field observations, GIS and satellite imagery analysis, and use of official statistics. Any identified data gaps or implementation risks will be documented in the baseline report together with recommended corrective measures within the approved technical scope of the project.

Where feasible, the project will support integration of selected monitoring methodologies, spatial datasets, and restoration tracking approaches into longer-term institutional monitoring systems of relevant national authorities to support post-project sustainability and continued adaptive management.

Evaluations

Two evaluations will be conducted over the project lifecycle: a mid-term evaluation and a final independent evaluation.

The mid-term review, expected approximately 2.5 years after the start of project implementation, will be commissioned and managed by the PIU. It will assess progress toward planned outputs and outcomes, identify implementation bottlenecks, evaluate the effectiveness and efficiency of EbA interventions, and provide recommendations to strengthen implementation performance for the second half of project implementation.

The independent final evaluation, commissioned and managed by the World Bank as Accredited Entity and conducted within six months of project completion, will assess overall project effectiveness, efficiency, sustainability, and contribution to long-term climate resilience and ecosystem restoration outcomes. The PIU will prepare a project completion report and final results framework update as its self-assessment contribution to the AE-managed final evaluation.

Both evaluations will apply mixed methods approaches combining qualitative and quantitative evidence, including field verification visits, stakeholder consultations, structured surveys where appropriate, and analysis of monitoring data.

The evaluation framework will recognize uncertainties associated with long-term ecosystem restoration processes, climatic variability, and evolving environmental conditions, and will apply adaptive evaluation approaches where necessary to support robust interpretation of project results

Evaluation reports will be submitted by the World Bank to the GCF Secretariat and shared with relevant government agencies and other national stakeholders in accordance with applicable disclosure procedures.

The disaggregated evaluation indicative budget below in Table 1.

Table 1. Evaluation indicative budget.

Type	Timing	Self-evaluation	Indicative Budget (USD)
Baseline data collection and M&E system setup	Year 1 of implementation	PIU-led, with World Bank oversight	150,000
Mid-term	Mid-Term (2.5 years after the start of the project implementation)	PIU-led, with World Bank oversight	150,000
Final	Final (Within 6 months of the end of project implementation)	<i>Independent evaluation</i>	fee provided in AE fee Annex

8. Reporting Plan

Project outputs and outcomes will be monitored both individually and in relation to overall project objectives. Reporting arrangements will ensure timely provision of implementation information to support project supervision, adaptive management, and compliance with reporting requirements.

Project Inception Report

An Inception Report will be prepared during the initial implementation phase following completion of project inception consultations at national and district levels. The report will confirm implementation arrangements, monitoring responsibilities, updated first-year work planning priorities, and any adjustments required to reflect implementation readiness conditions.

The Inception Report will include:

- confirmation of institutional roles and responsibilities;
- refinement of monitoring and evaluation procedures;
- confirmation of baseline assessment methodology;
- updated first-year implementation work plan and budget; and
- summary of stakeholder consultation outcomes supporting implementation readiness.

Annual Progress Reports

Annual Progress Reports (APRs) will be prepared in accordance with the provisions of the FAA. Implementation information required for APR preparation will be compiled by the PIU in close coordination with the MoE and supporting partners and technical institutions.

APRs will document progress against results indicators, implementation status, safeguards compliance, stakeholder engagement activities, and lessons learned from implementation.

Technical Reports

Technical reports supporting delivery of project outputs will be prepared by supporting partners and contracted service providers in accordance with their contractual responsibilities. These reports will provide technical evidence supporting monitoring of implementation progress and achievement of outputs.

Project Completion Reporting

Toward project closure, the PIU will prepare inputs required for completion reporting. The final APR and the final independent evaluation will together constitute the project completion reporting package submitted by the World Bank to the GCF.

9. Learning Plan

In addition to routine monitoring and evaluation activities, the project will implement a structured learning and knowledge-sharing programme designed to strengthen national capacity for EbA implementation and restoration planning.

Annual technical learning activities will support capacity development across project stakeholders, including training on monitoring methodologies, safeguards implementation, restoration techniques, nursery operations, and EbA practices.

Field-based learning sessions will be organised within intervention districts to facilitate exchange of implementation experience among supporting partners, local authorities, forest managers, and community representatives. These activities will support practical knowledge transfer related to restoration planning, planting quality control, ANR, and maintenance of restored sites.

National knowledge-exchange workshops will facilitate dissemination of implementation experience and lessons learned among government institutions, technical agencies, and project stakeholders.

Knowledge products prepared under the project may include technical briefs, case studies, operational guidance materials, maps, and communication products documenting implementation experience and restoration approaches.

Lessons learned and implementation experience generated under the project may also support future development of national ecosystem restoration methodologies, climate adaptation planning approaches, and nature-based solution implementation frameworks in Moldova.

Knowledge generated through the project will be made accessible through institutional communication platforms of the MoE and relevant project partners and may contribute to regional and international knowledge-exchange processes related to EbA implementation.