

Annex 15: Initial Monitoring, Evaluation, and Reporting (MER) Plan

Yemen Climate Water Information Management & Early Warning Systems (CWIMEWS)

1. Purpose and Status of this Document

This Initial Monitoring, Evaluation, and Reporting (MER) Plan provides the foundational architecture for results tracking, learning, and reporting under CWIMEWS. It is not intended as a final, fully operationalized M&E system; rather, it establishes the monitoring logic, institutional responsibilities, indicator framework, and reporting timelines that will be reviewed, refined, and elaborated in detail during the project inception phase, once baseline data collection has been completed and the Project Operational Manual (POM) is finalized. This plan demonstrates the shared commitment of the Accredited Entity (World Bank) and Executing Entity (UNDP) to a robust, adaptive, and evidence-based approach to results monitoring, and gives GCF visibility into how the MER system will evolve between funding approval and full inception.

2. Objectives of the MER System

The MER system is designed to serve three interlinked purposes. First, it will generate the evidence required to report against the project's results framework (logframe) at output, outcome, and impact levels, in line with GCF's monitoring and accountability requirements. Second, it will be operationally integrated into the development and running of the Climate and Water Information Management System (CWIMS) itself, so that system performance data (e.g., station functionality, data transmission reliability, forecast accuracy) directly informs technical adjustments during implementation. Third, it will support institutional learning across the Joint Project Implementation Unit (JPIU), Technical Reference Group (TRG), and Steering Committee (SC), enabling timely course correction in Yemen's fragile and access-constrained operating context.

3. Monitoring Architecture

The MER system operates across four tiers. At the activity level, the JPIU will maintain a rolling activity tracker capturing progress, delays, and risk flags on a monthly basis. At the output level, technical partners (CAMA/YMS, NWRA, CDA, MAIF) will report quarterly against output indicators specific to their mandate (e.g., stations rehabilitated, forecasts issued, EAPs co-designed). At the outcome level, UNDP will consolidate data semi-annually for reporting to the World Bank and GCF, supplemented by Third-Party Monitoring (TPM) verification. At the impact level, periodic evaluations (mid-term and terminal) will assess progress toward the project's higher-level development and adaptation objectives, drawing on beneficiary surveys and system-level performance data.

Data will flow bottom-up: field- and station-level data feeds into the CWIMS platform and JPIU tracking systems, is aggregated and quality-assured by the JPIU, verified where relevant by TPM, and reported by UNDP to the World Bank for consolidation and submission to GCF.

4. Institutional Roles and Responsibilities

Entity	MER Responsibility
World Bank (Accredited Entity)	Fiduciary and technical oversight of the MER system; review and clearance of AE progress reports to GCF; Implementation Support Missions; quality assurance of indicator methodology.
UNDP (Executing Entity)	Overall results accountability; consolidation of progress data from JPIU and technical partners; timely submission of EE reports to the AE; resourcing and staffing of the M&E function.
Joint Project Implementation Unit (JPIU)	Day-to-day data collection, indicator tracking, maintenance of the project M&E database, coordination of data inputs from technical partners, drafting of progress reports.

Ministry of Water and Environment (MWE) / Climate Change Unit (CCU)	Strategic oversight of alignment between project results and national climate and water policy priorities; validation of national-level indicators.
Technical Reference Group (TRG)	Technical validation of sector-specific indicators (e.g., forecast accuracy, hydromet performance); advisory input on indicator refinement.
Steering Committee (SC)	Biannual review of consolidated progress reports; strategic guidance on addressing implementation bottlenecks affecting results delivery.
Third-Party Monitor (TPM)	Independent verification of results and physical site data in locations with access constraints; periodic beneficiary-level data collection; triangulation of JPIU-reported data.

5. Indicator Framework (to be finalized at inception)

The detailed indicator framework will be developed during inception, building on the logframe attached as Annex 2a. This process will prioritize the selection of clear, quantifiable output-level indicators that capture tangible, verifiable results at each stage of the results chain, rather than relying solely on higher-level outcome indicators that are harder to attribute and measure in a fragile context. Illustrative indicator categories, to be refined with baseline data, include: number and functionality rate of rehabilitated/new hydromet stations; volume of historical hydromet records digitized and integrated into CWIMS; timeliness and lead time of multi-hazard early warnings issued; number of tailored climate service products developed and disseminated by sector; number of Community Early Action Plans co-designed and operationalized; and number of beneficiaries reached disaggregated by gender, location, and dissemination channel.

Target-setting will be evidence-based and realistic, informed by baseline data collected during inception and calibrated to the operational realities of Yemen's access, security, and capacity constraints, rather than based on aspirational assumptions. While a detailed indicator framework will be finalized during project inception following completion of baseline assessments, establishment of the Project Operational Manual (POM), and consultation with implementing partners, the framework presented below provides a preliminary monitoring architecture for all outputs and key activities identified in the project logical framework. Indicator definitions, calculation methodologies, disaggregation requirements, baselines, targets, and verification protocols will be further refined during inception. The framework is intended to demonstrate the monitoring pathway linking project activities to outputs, outcomes, and GCF results.

Outcome 1: Developing, Establishing and Operationalizing a Climate and Water Information Management System (CWIMS)

Output	Preliminary Indicator(s) (TBC during inception)	Target	Primary Data Source	Collection Responsibility	Reporting Frequency	Reporting Format
Output 1.1: Integrated Baseline Information, recovered datasets, Network Assessment, and National Observation System Design	Data digitization progress; baseline datasets compiled; network assessment completed	TBC	CWIMS repository records, digitization database, baseline reports, network assessment reports	JPIU, supported by consultants and technical agencies	Quarterly	Technical progress report
Output 1.2: Expanded and Modernized Hydro-Meteorological and Hydrological Monitoring Infrastructure	Monitoring stations rehabilitated and operational; telemetry functionality; network uptime	TBC	Station inventories, telemetry dashboards, commissioning reports, maintenance records	NWRA, CAMA, MWE technical units	Quarterly	Infrastructure performance report

	and maintenance performance					
Output 1.3: National Climate and Water Information Management System Operationalized	CWIMS functionality; agencies connected; data integration performance; automated workflows operational	TBC	CWIMS analytics, API registry, access logs, system reports	SMU and JPIU	Quarterly	CWIMS performance report

Outcome 2: Implementing Climate-Resilient Decision-Making and Early Warning

Output	Preliminary Indicator(s) (TBC during inception)	Target	Primary Data Source	Collection Responsibility	Reporting Frequency	Reporting Format
Output 2.1: Climate- Risk Monitoring and Forecasting Systems operational	Forecasting models operational; risk maps produced; climate risk products generated and disseminated	TBC	Model outputs, validation reports, risk mapping products, CWIMS analytics	CAMA, NWRA, SMU	Quarterly	Forecasting and risk monitoring report
Output 2.2: National Multi-Hazard Early Warning System (MH-EWS) established and linked with Governorate-Level Systems	Early warnings issued; warning lead times achieved; governorates connected; SOPs operationalized	TBC	EWS logs, CAP analytics, dissemination records, simulation reports	SMU and governorate operation rooms	Quarterly	Early warning system performance report
Output 2.3: Climate Services and Advisory Products developed and disseminated	Climate service products developed and disseminated; dissemination channels operational; preparedness plans completed	TBC	Product catalogues, dissemination records, communication analytics, preparedness plans	SMU, sector agencies, governorate authorities	Quarterly	Climate services report

Outcome 3: Strengthening the Enabling Environment

Output	Preliminary Indicator(s) (TBC during inception)	Target	Primary Data Source	Collection Responsibility	Reporting Frequency	Reporting Format
Output 3.1: National Climate and Water Information and Early Warning Center established	National center operational; ICT infrastructure installed; governorate operation rooms established and linked	TBC	Commissioning reports, ICT inventories, connectivity records	MWE/SMU	Quarterly	Institutional performance report

Output 3.2: Coordination Mechanisms and Governance Protocols for Climate and Water Information Management formalized	Coordination mechanisms operational; data-sharing agreements signed; SOPs approved and implemented	TBC	MoUs, governance records, meeting minutes, SOP documentation	MWE/CCU	Semi-annual	Governance and coordination report
Output 3.3: Business Models and Investment Plans for CWIMS/EWS Sustainability developed	Lifecycle cost assessment completed; sustainable financing model developed; scale-up plan endorsed	TBC	Cost assessments, business plans, investment plans	JPIU and consultants	Semi-annual	Sustainability and investment report
Output 3.4: Institutional and technical capacity strengthened	Staff trained; institutional capacity improved; operational manuals developed and adopted	TBC	Training records, competency assessments, capacity assessments, manual adoption records	JPIU and training providers	Quarterly	Capacity-building report

6. Data Collection Methods and Sources

Data will be drawn from multiple complementary sources: (i) automated system-generated data from CWIMS (station telemetry, data transmission logs, forecast outputs); (ii) administrative records maintained by JPIU and technical partner institutions; (iii) TPM field verification and beneficiary surveys in locations with restricted direct access; (iv) periodic household or community-level surveys to assess uptake and utility of early warning products; and (v) qualitative feedback loops from Community Early Action Plan processes, which will feed back into system design adjustments.

7. Reporting Timelines

Report	Frequency	Responsible	Recipient
Activity/output tracking updates	Monthly	JPIU	Internal (JPIU/UNDP)
Progress report	Quarterly	JPIU, consolidated by UNDP	World Bank
AE Progress Report	Semi-annual	World Bank	GCF
TPM verification report	Semi-annual (or as scheduled)	Independent TPM agent	UNDP/World Bank
Annual Performance Report	Annual	UNDP, cleared by World Bank	GCF
Mid-Term Review	Once, at project mid-point	World Bank/UNDP (independent evaluators)	GCF
Terminal Evaluation	Once, at project completion	Independent evaluators	GCF

8. Use of Monitoring Data for Adaptive Management

Monitoring data will not be collected solely for compliance reporting. System performance indicators (e.g., station downtime, data gaps, forecast verification scores) will be reviewed on a rolling basis by the JPIU and TRG to trigger timely technical or operational adjustments to CWIMS. Community feedback gathered through the

Early Action Plan process will similarly inform iterative improvements to dissemination channels and product design. This adaptive feedback loop will be formalized in the detailed M&E Plan developed at inception, including defined thresholds that trigger management review.

9. Next Steps for Inception-Phase Elaboration

During inception, the following will be completed to finalize the M&E system: (i) baseline data collection across all output indicators; (ii) finalization of indicator definitions, disaggregation requirements, and means of verification; (iii) confirmation of TPM scope, sampling methodology, and mission frequency; (iv) integration of the M&E system into the Project Operational Manual; and (v) establishment of the M&E database and reporting templates to be used by the JPIU throughout implementation.