UN environment programme

Strengthening Climate Information and Multi-Hazard Early Warning Systems for Increased Resilience in Azerbaijan

Annex 2a

Logical Framework

LOGICAL FRAMEWORK

1. GCF Impact level: Paradigm shift potential (max. 300 words)

Assessment Dimension	Current state (Baseline)		Potential target scenario (Description)	How the project/programme will contribute (Description)
	Description	**Rating**		
Scale	Azerbaijan has weak and limited capacity to deliver reliable climate information services and early warnings. The existing hydrometeorological observation network lacks full automation and data collection practices and capabilities are poor. There is no national forecasting model and current processes are inadequate for timely dissemination of information. Early warning systems are insufficient in scale and scope to ensure adequate risk knowledge, disaster preparedness and response capabilities.	Low	Paradigm shift would move away from the current reliance on limited data, risk knowledge and capacities, towards a new paradigm whereby Azerbaijan can deliver reliable climate information services and a people-centred, impact-based multi-hazard early warning system (IB-MHEWS) that contribute to enhancing resilience, reducing vulnerability, and averting and minimising both economic and non-economic loss and damage associated with the adverse impacts of climate change.	The project's outputs will enhance data, knowledge and capacities with respect to climate change adaptation and loss and damage in several areas identified under Articles 7 and 8 of the Paris Agreement, including systematic observations, early warning systems, comprehensive risk assessment and management, and resilience of communities, livelihoods, and ecosystems. Emphasis on a socially inclusive, child- and gender-responsive approach has the potential to support of a large-scale shift in access to and use of climate information services and IB-MHEWS by the most vulnerable population groups.
Replicability	At present, there is no capacity in Azerbaijan to deliver location- or sector-specific climate information services and no IB-MHEWS exists, so replication is not yet possible.	Low	If capacity to deliver localised and/or sector-specific climate information services and community-level IB-MHEWS and implement Forecast-based Action (FbA) is established, these solutions could be replicated to other sectors and communities across Azerbaijan, as well as regionally and internationally.	Output 2 will establish capacity for localised and impact-based forecasting and the co-production of sector-specific climate analytics and information products. Output 3 focuses on the establishment of a people-centred IB-MHEWS and includes capacity building for community MHEWS. Output 4 includes a dedicated activity to establish FbA using climate shock-responsive social protection as an enabler.
Sustainability	The Government of Azerbaijan's commitment to strengthening climate information services and IB-MHEWS is evidenced by the identification of the proposed GCF investment as a priority in the Fourth National Communication and	Medium	Paradigm shift would see the establishment of a sustainable business delivery model for climate services and IB-MHEWS that fulfils public sector responsibility to provide	Output 1 focuses on strengthening the overall delivery model for climate services and MHEWS, including through establishment of a National Framework for Climate Services and associated financial strategy. Output 2 will build capacity of the

	both committed and realised funding for new hydrometeorological equipment. While the institutional baseline is promising, Azerbaijan lacks capacity for a coordinated and integrated approach to strengthening climate services and IB-MHEWS across the entire value chain. There is also very limited uptake or even awareness of climate services and early warning systems at the sectoral and community level.		climate services (including EWS) as a public good, whilst also developing a profitable commercial market for specialised climate analytics that meet private sector needs for management of climate-related risks. Behavioural and attitudinal change from national to local level will support this, where Azerbaijan's population utilise climate services and IB-MHEWS to inform actions that enhance their resilience to climate change and climate-related hazards.	National Hydrometeorological Service to produce both 'public good' climate services and specialised climate analytics, with potential for future commercialisation. Meaningful engagement and participation of multiple stakeholders from national to sectoral to community level to deliver on all project Outputs will help to promote behavioural and attitudinal shifts towards risk-informed actions for climate resilience.

2.1. GCF Outcome level: Reduced emissions and increased resilience (IRMF core indicators 1-4, quantitative indicators)

GCF Result Area	IRMF Core Indicators (1-4)[1]	Means of Verification (MoV)	Baseline	Target Mid-term	Target Final[2]	Assumptions / Notes
Total project direct / indirect beneficiaries	Core 2: Direct and indirect beneficiaries reached	Project implementation progress reports NHMS and MoES data (where available) Guidance will be provided to relevant stakeholders for reporting on this indicator at the project level. It will include at least one external source of verification, e.g. survey data.	0	Direct: 1.71 million (17% of the total population; M: 0.85 million, F: 0.86 million) Indirect: 1.08 million (11% of the population; M: 0.54 million, F: 0.54 million)	Direct: 5.71 million (56% of the total population; M: 2.83 million; F: 2.88 million) Indirect: 3.61 million (36% of the population; M: 1.81 million, F: 1.80 million)	Assumptions are provided in sub-section 16.3.1 *Methodology for calculating project beneficiaries* in the Pre-Feasibility Study (Annex 2) Assume that 30 percent of total beneficiaries (direct and indirect) will be reached by the mid-term of the project
ARA1 Most vulnerable people and communities	Core 2: Direct and indirect beneficiaries reached	Project implementation progress reports NHMS and MoES data (where available) Guidance will be provided to relevant stakeholders for reporting on this indicator at the project level. It will include at least one external source of verification, e.g. survey data.	0	Direct: 1.71 million (17% of the total population; M: 0.85 million, F: 0.86 million) Indirect: 1.08 million (11% of the population; M: 0.54 million, F: 0.54 million)	Direct: 5.71 million (56% of the total population; M: 2.83 million; F: 2.88 million) Indirect: 3.61 million (36% of the population; M: 1.81 million, F: 1.80 million)	Assumptions are provided in sub-section 16.3.1 *Methodology for calculating project beneficiaries* in the Pre-Feasibility Study (Annex 2) Assume that 30 percent of total beneficiaries (direct and indirect) will be reached by the mid-term of the project

[1] The IRMF Indicators are set out in the Integrated Results Management Framework

[2] The final target means the target at the end of project/programme implementation period. However, for core indicator 1 (GHG emission reduction), please also provide the target value at the end of the total lifespan period which is defined as the maximum number of years over which the impacts of the investment are expected to be effective.

ARA2 Health, well-being, food and water security	Core 2: Direct and indirect beneficiaries reached	Project implementation progress reports NHMS, MoES and MoH data (where available) Guidance will be provided to relevant stakeholders for reporting on this indicator at the project level. It will include at least one external source of verification, e.g. survey data.	0	Direct: 1.71 million (17% of the total population; M: 0.85 million, F: 0.86 million) Indirect: 1.08 million (11% of the population; M: 0.54 million, F: 0.54 million)	Direct: 5.71 million (56% of the total population; M: 2.83 million; F: 2.88 million) Indirect: 3.61 million (36% of the population; M: 1.81 million, F: 1.80 million)	Assumptions are provided in sub-section 16.3.1 *Methodology for calculating project beneficiaries* in the Pre-Feasibility Study (Annex 2) Assume that 30 percent of total beneficiaries (direct and indirect) will be reached by the mid-term of the project
ARA1 Most vulnerable people and communities	Supplementary 2.4: Beneficiaries (female/male) covered by new or improved early warning systems	Project implementation progress reports NHMS and MoES data (where available) Guidance will be provided to relevant stakeholders for reporting on this indicator at the project level. It will include at least one external source of verification, e.g. survey data.	0	Direct: 1.71 million (17% of the total population; M: 0.85 million, F: 0.86 million) Indirect: 1.08 million (11% of the population; M: 0.54 million, F: 0.54 million)	Direct: 5.71 million (56% of the total population; M: 2.83 million; F: 2.88 million) Indirect: 3.61 million (36% of the population; M: 1.81 million, F: 1.80 million)	Assumptions are provided in sub-section 16.3.1 *Methodology for calculating project beneficiaries* in the Pre-Feasibility Study (Annex 2) Assume that 30 percent of total beneficiaries (direct and indirect) will be reached by the mid-term of the project
ARA1 Most vulnerable people and communities	Supplementary 2.7: Change in expected losses of lives due to the impact of extreme climate-related disasters in the geographic area of the GCF intervention	Analysis of national data and international disaster databases (e.g., EM-DAT and Sendai Monitor)	4	Loss of lives due to the impact of extreme climate-related disasters reduced to 3 deaths per year (averaged)	Loss of lives due to the impact of extreme climate-related disasters reduced to 1 death per year (averaged)	Based on examples of similar efforts to strengthen climate information and MHEWS, it is estimated that integrated early warning systems can potentially be 60% effective in reducing loss of life due to floods, and 20% effective in case of drought (Teisberg and Weiher 2009)[3] Assume that since early warning systems will be fully established only by the end of the project, 30% of this target can be achieved by mid-term and 100% by the end of the project According to available statistics,[4] there have been no documented drought-related deaths, but there have been flood-related deaths,

[3] https://www.gfdrr.org/sites/gfdrr/files/Teisberg_EWS.pdf
[4] CAREC, 2022. Country Risk Profile Azerbaijan. Available at: https://www.carecprogram.org/uploads/CAREC-Risk-Profiles_Azerbaijan.pdf

						with the most damaging in 2010 (40 people died). When averaged from 1995 to 2010, average deaths per year were 4 people. This can be used as a baseline, averaged for the period of project implementation.
ARA1 Most vulnerable people and communities	Supplementary 3.1: Change in expected losses of economic assets due to the impact of extreme climate-related disasters in te geographic area of the GCF intervention	Analysis of national data and international disaster databases (e.g., EM-DAT and Sendai Monitor)	$306.3 million in annual average losses (AAL)	AAL reduced by $30.6 million annually	AAL reduced by $91.9 million annually	Annual average losses (AAL) for climate-related hazards in Azerbaijan are estimated as follows: $300 million for floods, $6 million for droughts and $0.3 million for landslides[5] According to the WMO, damage caused by a disaster can be reduced by 30% if an early warning is issued within 24 hours[6] Assume that since early warning systems will be fully established only by the end of the project, there will be 10% reduction in climate-related AAL by mid-term and 30% reduction in climate-related AAL by the end of the project

[5] Further information is provided in the Pre-Feasibility Study (Annex 2)
[6] WMO. Early Warning System. Available at: https://wmo.int/topics/early-warning-system

2.2. GCF Outcome level: Enabling environment (IRMF core indicators 5-8 as applicable)

IRMF Core Indicators (5-8)[7]	Baseline context (Description)	Rating for current state (Baseline)	Target scenario (Description)	How the project will contribute	Coverage
Core Indicator 5: Degree to which GCF investments contribute to strengthening institutional and regulatory frameworks for low emission climate-resilient development pathways in a country-driven manner	The Government of Azerbaijan's commitment to low emission climate-resilient development is evidenced through several national policies and strategies, including the "Azerbaijan 2020: Look into the Future" Concept of Development and its first Nationally Determined Contribution. However, there is currently no policy or legal document in place for adaptation and no institutional framework or mechanism for the delivery of coordinated and integrated climate information services and a multi-hazard early warning system (MHEWS).	medium	An institutional framework is in place that mainstreams climate information services and integrates the use of MHEWS into policies, decision-making and planning at all levels.	Output 1 supports the establishment of a National Framework for Climate Services to strengthen generation and uptake of climate services across Azerbaijan, particularly in priority sectors of the Global Framework for Climate Services.	National level (one country)
Core Indicator 6: Degree to which GCF investments contribute to technology deployment, dissemination, development or transfer and innovation	Current hydrometeorological and air quality observation infrastructure is outdated and/or in poor condition. Modelling and forecasting processes are reliant on external technologies, with no downscaling to the local context.	low	State-of-the-art climate services and people-centred, impact-based MHEWS are operational and effective, and make use of modernised hydromet services, digital technologies and e-infrastructure.	Output 2 will build infrastructural, technical and technological capacity in Azerbaijan for modernised hydromet services and tailored climate analytics based on international best practices and promoting innovative technologies where relevant. Output 3 will strengthen capacity to establish a people-centred,	National level (one country)

---

[7] The IRMF Indicators are set out in the Integrated Results Management Framework

				impact-based MHEWS, including a digitally-enabled national Multi-Hazard Alert System.	
Core indicator 8: Degree to which GCF investments contribute to effective knowledge generation and learning processes, and use of good practices, methodologies and standards	There is no formal knowledge platform or process for climate-related hazard and risk information, and no procedures for the dissemination of risk information to the general population. Hence, risk knowledge in Azerbaijan is very limited. There is also a lack of capacity to implement good practices, methodologies and standards related to climate services and MHEWS.	low		Knowledge management platforms and processes are established and inform the delivery of effective climate services and MHEWS in line with international best practices, as well as provide an enabling environment for continuous feedback, learning and impact evaluation.	Robust knowledge management is a cross-cutting priority throughout the project, with targeted training and capacity building designed to enhance in-country skills, knowledge and expertise. Additionally, at the institutional level, Output 1 will establish a User Interface Platform as a structured means to strengthen institutional collaboration for climate services and promote risk-informed, science-based decision making.

					impact-based MHEWS, including a digitally-enabled national Multi-Hazard Alert System.
Core indicator 8: Degree to which GCF investments contribute to effective knowledge generation and learning processes, and use of good practices, methodologies and standards	There is no formal knowledge platform or process for climate-related hazard and risk information, and no procedures for the dissemination of risk information to the general population. Hence, risk knowledge in Azerbaijan is very limited. There is also a lack of capacity to implement good practices, methodologies and standards related to climate services and MHEWS.	low		Knowledge management platforms and processes are established and inform the delivery of effective climate services and MHEWS in line with international best practices, as well as provide an enabling environment for continuous feedback, learning and impact evaluation.	Robust knowledge management is a cross-cutting priority throughout the project, with targeted training and capacity building designed to enhance in-country skills, knowledge and expertise. Additionally, at the institutional level, Output 1 will establish a User Interface Platform as a structured means to strengthen institutional collaboration for climate services and promote risk-informed, science-based decision making.

National level (one country)

3. Project/programme specific indicators (project outcomes and outputs)

Project/programme results (outcomes/ outputs)	Project/programme specific Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions / Note
				Mid-term	**Final**	
Outcome 1 – Relevant, science-based climate and disaster risk information is widely available and accessible	Availability and accessibility of climate and disaster risk information through a web-based system (SmartMet)	Tracking of SmartMet system	SmartMet system is not established/ operational in Azerbaijan	Climate information is accessible through SmartMet by two Global Framework for Climate Services (GFCS) sectors Climate information is available through forecasts generated by SmartMet covering at least 40% of the territory	Climate information is accessible through SmartMet by all five GFCS sectors Climate information is available through forecasts generated by SmartMet covering 100% of the territory	Internet penetration remains high such that web-based systems are widely accessible Government of Azerbaijan is committed to the operationalisation of SmartMet
Output 1 – Strengthened delivery model for climate services and multi-hazard early warning systems (MHEWS)	Establishment of a National Framework for Climate Services (NFCS) and operationalisation of the National Climate Outlook Forum (NCOF)	NFCS documentation Project Steering Committee (PSC) reports Project implementation progress reports NCOF reports	Azerbaijan has no NFCS or NCOF established or in operation	Azerbaijan has a draft NFCS NCOF held on a quarterly basis	Azerbaijan has established an NFCS submitted to the Cabinet of Ministers as per government process NCOF held on a quarterly basis	Government of Azerbaijan is committed to the development of climate information services and mainstreaming climate considerations into policy and planning Stakeholders are willing to adopt new institutional mechanisms
Outcome 2 – Well-informed, evidence-	Use of climate information services	Reports from sectors to the NCOFs	Climate services are not available	Two GFCS sectors report use	All five GFCS sectors report use	NHMS engages with end-users and ensures

based decision making is supported by reliable climate information services and impact-based MHEWS	in decision making of GFCS sectors	Project implementation progress reports	for use in decision making of GFCS priority sectors	of climate information services in their decision-making processes	of climate information services in their decision-making processes	that their inputs are reflected in the climate information services and MHEWS to be established Sectors are willing to utilise climate information services and MHEWS to make their operations more efficient and resilient to climate change impacts
Output 2 – Strengthened observations, monitoring, modelling and prediction of climate and its impacts	Level of enhancement of the weather, water and climate observation network	Review of data repository for hydrometeorological stations Country inputs to the WMO Integrated Global Observing System (WIGOS)	Azerbaijan is at level 1 on a scale[8] for enhanced weather, water and climate observation networks	Azerbaijan is at level 3 on a scale for enhanced weather, water and climate observation networks	Azerbaijan is at level 4 on a scale for enhanced weather, water and climate observation networks	Hydromet technicians with requisite skills and capacity are able to be recruited and maintained NHMS staff are willing and able to install, operate and maintain observation equipment
	Capacity of the National Hydrometeorological Service (NHMS) to implement Numerical Weather Prediction (NWP) for local forecast generation	Project implementation progress reports	NHMS does not have capacity to implement local NWP	NWP model has been implemented and configured within NHMS	NWP is implemented for local forecast generation and NHMS has capacity to undertake NWP assimilation procedures and ensemble techniques	NHMS staff are willing and able to undertake capacity development on local NWP implementation and generation of impact-based forecasts
	Capacity of NHMS to generate and deliver	Project implementation progress reports	NHMS does not have capacity to	NHMS is generating and	NHMS is generating and	

---

[8] Scale for enhanced weather, water and climate observation networks: Level 1 – Country has significant gaps in the weather, water and climate observation network; Level 2 – Country has upgraded and expanded observation network to fill most critical gaps in coverage; Level 3 – Country has upgraded and expanded observation network to fill most critical gaps in coverage and meet Global Basic Observing Network (GBON) "should" provisions for surface-land stations; Level 4 – Country has upgraded and expanded observation network to fill most critical gaps in coverage and meet GBON "should" provisions for surface-land and upper-air stations; Level 5 – Country has upgraded and expanded observation network to fill most critical gaps in coverage and meet GBON "should" *and* "shall" provisions for surface-land and upper-air stations.

	impact-based forecasts		undertake impact-based forecasting	making available impact-based forecasts for two hazards	making available impact-based forecasts for five hazards	
	Generation of health risk forecasts and targeted analytics	Health risks forecasts and targeted analytics are available through SmartMet	NHMS does not have capacity to provide health risk forecasts or targeted analytics	Climate-related health risks and vulnerabilities are identified; Health risk forecasts and targeted analytics are under development	NHMS is generating and making available health risk forecasts and targeted analytics	Stakeholders in the health sector and other relevant entities are willing to collaborate and share information and knowledge NHMS and health sector stakeholders are willing and able to undertake capacity development on the generation of health risk forecasts
Output 3 – Enhanced dissemination and communication of climate risk information and multi-hazard early warnings	Establishment of a socially inclusive, child- and gender-responsive communication strategy	Communication strategy	There is no communication strategy related to MHEWS	Azerbaijan has a draft socially inclusive, child- and gender-responsive community strategy	Azerbaijan has a socially inclusive, child- and gender-responsive community strategy reviewed and approved by key stakeholders	Stakeholders are willing to promote socially inclusive, child- and gender-responsive communications approaches
	Involvement of children and youth in MHEWS	Project implementation progress reports Youth platforms and workshops	Limited involvement of children and youth in MHEWS	2,000 adolescents and young people engaged in MHEWS through workshops, peer education and youth-led community initiatives	5,000 adolescents and young people engaged in MHEWS through workshops, peer education and youth-led community initiatives	Adult stakeholders are willing to include children and youth in MHEWS development and operation
	Level of operationalisation of a national Multi-Hazard Alert System	Project implementation progress reports	Azerbaijan is at	Azerbaijan is at level 2 on a scale for operationalisation of a national	Azerbaijan is at level 3 on a scale for operationalisation of a national	NHMS staff are willing to engage in the development and operationalisation of a national Multi-Hazard

			level 1 on a scale[9] for operationalisation of a national Multi-Hazard Alert System	Multi-Hazard Alert System	Multi-Hazard Alert System	Alert System
Outcome 3 – Increased resilience and reduced vulnerability of sectors and communities to the adverse impacts of climate change and climate-related hazards	Use of climate services and MHEWS to inform preparedness and disaster risk reduction (DRR) approaches	Surveys conducted by among project beneficiaries (in Year 3 and Year 6)[10] Project implementation progress reports	Limited availability of climate services and lack of MHEWS to inform preparedness and DRR Azerbaijan is at level 1 on a scale[11] for use of climate services and MHEWS to inform preparedness and DRR	Azerbaijan in at level 2 on a scale for use of climate services and MHEWS to inform preparedness and DRR	Azerbaijan in at level 3 on a scale for use of climate services and MHEWS to inform preparedness and DRR	Outreach and awareness activities are effective at informing stakeholders on climate services and MHEWS Stakeholders are willing to use climate services and MHEWS to inform preparedness and DRR actions
	Understanding of climate change impacts on health and use of climate information and early warning systems (CIEWS) to ensure public health and safety	Surveys conducted among project beneficiaries (in Year 3 and Year 6)[12]	Azerbaijani population has limited understanding of climate change impacts on health and limited use of CIEWS to ensure public health and	At least 60% of surveyed stakeholders report understanding of climate change impacts on health	At least 80% of surveyed stakeholders report understanding of climate change impacts on health At least 80% of	Health sector stakeholders are willing to use CIEWS to ensure public health and safety Targeted analytics for health will be under development at the

---

[9] Scale for operationalisation of a national Multi-Hazard Alert System: Level 1 – Country has no national Multi-Hazard Alert System; Level 2 – Country has basic elements of a national Multi-Hazard Alert System established; Level 3 – Country has fully operationalised a national Multi-Hazard Alert System

[10] Surveys to be conducted amongst participants at the end of each workshop held during the implementation of Sub-Activity 3.1.1. Stakeholders will include representatives of government entities, local EXCOMs, NGOs, teachers, volunteers, and local communities. Surveys will be made available to at least 300 stakeholders from 10 districts across Azerbaijan over the course of the project. Surveys are expected to ask the question: "To what extent are climate services and MHEWS used to inform preparedness and DRR?". Possible responses are expected to be: 1) Always, whenever possible; 2) Sometimes; 3) Rarely; 4) Never. (N.B. Exact wording of surveys may be refined at the start of project implementation, based on guidance from the M&E Advisor)

[11] Scale of level of use of climate services and MHEWS to inform preparedness and DRR: Level 1 – Climate services and MHEWS are never or rarely used to inform preparedness and DRR; Level 2 – At least 40% of surveyed stakeholders report to "Sometimes" use climate services and MHEWS to inform preparedness and DRR; Level 3 – At least 80% of surveyed stakeholders report to "Always, whenever possible" use climate services and MHEWS for to inform preparedness and DRR.

[12] Surveys to be conducted by UNICEF during the implementation of Sub-Activity 2.3.3

			safety		surveyed stakeholders report use of CIEWS to ensure public health and safety	mid-term of the project. Therefore, stakeholders are only expected to report on use of CIEWS to ensure public health and safety at the end of the project.
Output 4 – Enhanced climate risk management capacity	Improvement in climate risk management capacities of target communities	Capacity scorecards[13]	Level 1 – Capacity scorecards to be run during Year 1	Level 2	Level 3	Communities remain engaged in project interventions Communities understand the information provided
Project/programme co-benefit indicators						
Increased gender equality and social inclusion	Understanding of the gendered impacts of climate change Perceived equality of inputs to MHEWS and disaster preparedness planning	Surveys conducted among project beneficiaries (in Year 3 and Year 6)[14]	Azerbaijani population has limited understanding of the gendered impacts of climate change	At least 60% of surveyed stakeholders report understanding of the gendered impacts of climate change At least 30% of participants surveyed believe that they have equal input into MHEWS and disaster preparedness planning	At least 80% of surveyed stakeholders report understanding of the gendered impacts of climate change At least 70% of participants surveyed believe that they have equal input into MHEWS and disaster preparedness planning	Project stakeholders are willing to make their approach to MHEWS operations and disaster preparedness planning more socially inclusive

[13] Level 1 – To be determined in Year 1 of the project; Level 2 – At least 40% of target communities report improved climate risk management capacity; Level 3 – At least 80% of target communities report improve climate risk management capacity.
[14] Surveys to be conducted during the implementation of Sub-Activities 3.1.4 and 4.1.1

4. Project/programme activities and deliverables

Output	Activities	Description	Deliverables
Output 1 – Strengthened delivery model for climate services and multi-hazard early warning systems (MHEWS)	Activity 1.1. – Strengthen institutional, policy and financial frameworks for climate services	This activity will strengthen institutional, policy and financial frameworks and establish a long-term sustainable delivery model for climate information services and MHEWS in Azerbaijan. It will include the following sub-activities: 1.1.1 Develop a National Framework for Climate Services 1.1.2 Establish a User Interface Platform 1.1.3 Develop a national financial strategy for sustainable climate services	• Azerbaijan National Framework for Climate Services developed (1.1.1) • National Climate Outlook Forum conducted quarterly (from Q4 of Year 2) (1.1.2) • National financial strategy for sustainable climate services developed and operationalised (1.1.3)
	Activity 1.2 – Enhance climate data management and risk knowledge	This activity will support enhanced access to, analysis, and use of climate data and risk information in Azerbaijan. It will include the following sub-activities: 1.2.1 Develop a National Climate Data and Information Management Strategy 1.2.2 Build capacity for multi-hazard risk profiling and vulnerability assessments	• National Climate Data and Information Management Strategy developed (1.2.1) • Multi-hazard risk mapping conducted (1.2.2) • Digital portal/dashboard to visualise GIS-based hazard and risk analytics established (1.2.2) • Child-centred multi-hazard risk and vulnerability assessments conducted in 5 districts (1.2.2)
Output 2 – Strengthened observations, monitoring, modelling and prediction of climate and its impacts	Activity 2.1 – Enhance capacity and equipment for observations and monitoring	This activity will enhance weather, water and climate observations, monitoring capacity and associated infrastructure. It will expand and optimise the hydrometeorological observation network in line with Global Basic Observing Network (GBON) technical regulations and establish a robust Quality Management System within the National Hydrometeorological Service (NHMS). Moreover, it will establish capacity within NHMS to utilise innovative Internet of Things to enhance data collection and coverage in remote areas. This sub-activity will include the following sub-activities: 2.1.1 Expand and optimise the hydrometeorological observation network	• Expanded and optimised hydrometeorological observation network – including 20 automatic weather stations, 1 dual-polarization C-band Doppler radar system, 1 mobile X-band radar, 1 upper air sounding system, 10 automated snow depth sensors, 4 mobile discharge meters, and 2 landslide-monitoring drones (2.1.1) • QMS in NHMS established to achieve compliance with ISO 9001 standards (2.1.2) • O&M Plan developed (2.1.2) • Vulnerability and exposure data

		2.1.2 Strengthen the Quality Management System (QMS) in NHMS and develop an Operation and Maintenance (O&M) Plan	monitoring tool developed (2.1.3)
		2.1.3 Upgrade the Hydromet Situation Centre	• Observation data collection system established (2.1.3)
		2.1.4 Establish Internet of Thing (IoT) approaches	• Observation database management system established (2.1.3)
			• Message Switching System established (2.1.3)
			• Capacity for hydrological data management and quality assurance established (2.1.3)
			• Three workshops conducted on the use of wireless connectivity and IoT for climate services and disaster risk management & two workshops conducted on policy-related aspects of IoT planning and development (2.1.4)
			• Low-cost weather stations based on IoT technology deployed and piloted in selected communities (2.1.4)
	Activity 2.2 – Strengthen weather, water and climate modelling and impact-based forecasting	This activity will strengthen weather, water and climate modelling and impact-based forecasting in Azerbaijan through technical, technological and infrastructural capacity building and training. This will include modelling and forecasting for floods, landslides, drought, and extreme temperatures. It will include the following sub-activities: 2.2.1 Establish local Numerical Weather Prediction (NWP) and modelling processes 2.2.2 Establish multi-hazard impact-based forecasting tools and capabilities 2.2.3 Co-produce sector-specific climate analytics and information products for public and private stakeholders	• State-of-the-art forecast production and verification system (SmartMet) operationalised (2.2.1)
			• Local NWP model operationalised (2.2.1)
			• Hydraulic and hydrological models operationalised (2.2.1)
			• Multi-hazard modelling conducted (2.2.1)
			• Impact-based forecasts generated for multiple hazards (2.2.2)
			• Sector-specific climate analytics and information products produced (2.2.3)

	Activity 2.3 – Develop urban climate services for health	This activity will build capacity for urban climate services for health through development of an Integrated Urban Services Framework and gap-filling in the air quality monitoring system. It will also address the need for increased access, understanding and use of climate information for the health sector through the co-production of targeted analytics and decision support tools. It will include the following sub-activities: 2.3.1 Develop an Integrated Urban Services Framework 2.3.2 Enhance the air quality monitoring system 2.3.3 Co-produce targeted analytics and decision support for health	• Integrated Urban Services Framework developed and operationalised (2.3.1) • Air quality monitoring (AQM) system enhanced (2.3.2) • Health-focused climate analytics and decision support products produced (2.3.3) • Online training course on climate services for healthcare workers developed (2.3.3)
Output 3 – Enhanced dissemination and communication of climate risk information and multi-hazard early warning	Activity 3.1 – Establish an impact-based multi-hazard early warning system (MHEWS)	This activity will support the establishment of a people-centred, impact-based MHEWS in Azerbaijan, underpinned by established standard operating procedures (SOPs), warning protocols, and a socially inclusive, child- and gender-responsive communication strategy. A national Multi-Hazard Alert System will be established as part of the overall MHEWS and targeted capacity building at community level will be undertaken. This activity will include the following sub-activities: 3.1.1 Strengthen MHEWS organisational and decision-making processes 3.1.2 Co-develop a socially inclusive, child- and gender-responsive communication strategy 3.1.3 Establish a national Multi-Hazard Alert System 3.1.4 Build capacity for community MHEWS 3.1.5 Engage children and youth in MHEWS	• SOPs for functions, roles and responsibilities of EWS actors established (3.1.1) • Warning communication protocols developed (3.1.1) • Socially inclusive, child- and gender-responsive communication strategy developed (3.1.2) • National Multi-Hazard Alert System established (3.1.3) • Training and workshops on community MHEWS conducted (3.1.4) • 5,000 adolescents and young people engaged in MHEWS through workshops, peer education and youth-led community initiatives (UPSHIFT programme) (3.1.5)
Output 4 – Enhanced climate risk management capacity	Activity 4.1 – Build capacity to prepare for and respond to climate risks and hazards	This activity will improve capacity to prepare for and manage climate-related risks and hazards – from national to local level. This will be achieved through the development of SOPs and plans for disaster preparedness, as well as strategies to maintain preparedness for longer return periods. A nationwide awareness-raising and education campaign will be conducted, as well as targeted risk awareness and education interventions for women,	• SOPs and disaster preparedness plans at national, sectoral and local level established (4.1.1) • Nationwide public awareness and education campaign conducted (4.1.2)

		children and youth. It will include the following sub-activities:	• Risk awareness and education program for women conducted (4.1.3)
		4.1.1 Strengthen national, sectoral and community preparedness capabilities	• Targeted educational materials for children and youth developed and disseminated (4.1.4)
		4.1.2 Increase public awareness and education on climate-related hazards, early warning systems and risk management	
		4.1.3 Conduct a targeted risk awareness and education program for women	
		4.1.4 Disseminate targeted education materials for children and youth	
	Activity 4.2 – Establish Forecast-based Financing (FbF)	This activity will establish capacity for Forecast-based Action (FbA) and Forecast-based Financing (FbF) by embedding linkages between impact-based MHEWS and shock-responsive social protection. It will include the following sub-activities: 4.2.1 Develop a Roadmap for FbF 4.2.2 Strengthen capacities for climate shock-responsive social protection (SRSP) 4.2.3 Create a national registry for enhanced community- and household-level targeting for FbF 4.2.4 Develop a model for FbF linked to SRSP	• Roadmap for FbF developed (4.2.1) • Training and workshops to facilitate capacity development for FbF delivered through SRSP (4.2.2) • International study tour conducted to facilitate knowledge transfer and lessons learning on climate SRSP (4.2.2) • Virtual national registry for analysis and targeting of FbF through SRSP created (4.2.3) • Model or FbF linked to climate SRSP developed (4.2.4)

5. Monitoring, reporting and evaluation arrangements (max. 300 words)

A Monitoring and Evaluation (M&E) Advisor will be engaged by UNEP as EE to design and implement a performance monitoring and evaluation framework to track the project's progress towards achieving its targets, including in relation to social inclusion and child- and gender-responsiveness of project implementation. The M&E Advisor will be located in Baku, Azerbaijan, and will work closely with the Project Manager in the Project Management Unit (PMU). The M&E Advisor will be responsible for continuously monitoring progress during project implementation to ensure the quality of project execution and compliance with all GCF reporting requirements. This will be achieved by:

i) Measuring the indicators to assess the progress of the project in coordination with the Executing Entity (EE)

ii) Reporting the project's performance to the Project Steering Committee (PSC) and PMU.

At key points (i.e. baseline, annual performance reports, mid-point and end of project) the PMU will coordinate evidence-gathering exercises to verify this progress. Project targets and results will be triangulated with baseline surveys that will be initiated in Zear 1 and completed in Year 2 of the project implementation. All data

collected for monitoring, reporting and evaluation processes will be sex- and age-disaggregated, where possible and/or relevant. Specific attention will be paid to ensuring child and gender responsiveness, uptake of climate and early warning information, and environmental and social safeguards (ESS). The PMU will prepare semi-annual progress reports and quarterly financial statements, which will incorporate inputs from the Technical Partners, and will submit a consolidated report to UNEP Early Warning and Assessment Division in its role as AE. In turn, UNEP will submit annual performance reports and semi-annual financial reports to GCF.

The M&E Advisor will organise training for staff members of the EEs and Technical Partners in data collection and analysis, and on the project cycle, particularly relating to the effective monitoring and reporting of activities. All training will take a strengths-based approach, both in the training process and in the principles and practices taught. These skills will be reinforced by follow-up training at least annually, to ensure that monitoring activities are collecting meaningful information, and that the information is able to be used both for adaptive management in the implementation phase and for continuous evaluation of progress. During the Mid-Term Evaluation and Terminal Evaluation (see below), an independent evaluation consultant will validate a sample of the data collected through these monitoring tools.

Monitoring will also be undertaken by the AE through supervision visits and field missions to track implementation progress and challenges and strategically plan the way forward. UNEP will be responsible for managing the Mid-Term Evaluation (MTE) and the Terminal Evaluation (TE). UNEP as AE will oversee the process of hiring an external consultant to carry out the MTE, which will provide an assessment of project performance at the project's mid-point. This will be a formative exercise and will cover whether the project is on track, what problems and challenges the project is encountering, and what corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. The MTE will also embed an assessment of the project's contributions to a paradigm shift and enabling environment using a three-point scale rating (low, medium, and high) as per GCF guidelines. The PSC and the EE will participate in the MTE process and contribute to a management response to the MTE's recommendations with an implementation plan. The PMU will monitor the implementation of agreed recommendations during the remainder of the project implementation period. It is the responsibility of UNEP as AE to monitor whether the agreed recommendations are being implemented during the remainder of project implementation.

UNEP's Evaluation Office (EO) will be responsible for undertaking the independent Terminal Evaluation (TE) at the end of project implementation, which is a summative evaluation, and will liaise with the UNEP's Europe Office throughout the process. An independent assessment of project performance against GCF evaluation criteria (e.g., strategic relevance, effectiveness, efficiency, likelihood of impact and sustainability) will be made based on documentary evidence, stakeholder interviews and, if possible, a field mission. Each evaluation criterion will be rated using a six-point rating scheme. and a weighted average will be determined to provide an overall performance rating for the project as a whole. Where there are any differences in ratings between the independent evaluation consultant and the EO a final determination will be made by the Evaluation Office when the Terminal Evaluation report is finalised. As with the MTE, the TE will include an assessment of the project's contribution to a paradigm shift and enabling environment as per GCF guidelines. The draft TE report will be sent to project stakeholders during a commenting process managed by the EO. Formal comments on the report will be shared by the EO in an open and transparent manner. This evaluation report will be publicly disclosed and will be followed by a recommendation compliance process.

Interim and final evaluation will be covered by the AE fee. The costs for generation and collection of evaluative data are included in the project budget.