

Reporting Agency: UNDP

Country: Armenia

STANDARD PROGRESS REPORT

No. and title: 00111782/00110609 -Increase Resilience of Armenia to Climate Change through Modernization of Armenia's Hydrometeorological Service

Reporting period: January-March 2020

I. PURPOSE

Project goal:

The overall goal of the project is to improve climate change adaptation planning and programming in Armenia through enhancing the capacity of national hydro-meteorological observation and warning services, for strengthening Armenia's resilience to Climate Change risks.

The project focuses on strengthening the technical and professional capacities of the Armenia Hydrometeorological Service (AHS) to ensure adequate forecast and warning services for contributing to climate resilient development. A substantial modernization program for the Armenia Hydrometeorological Service will include three directions.

Project objective:

- Hydro-meteorological observation and forecasting system enhanced and modernized.
- Hydrometeorological observation and warning infrastructure improved.
- Hydro-meteorological service delivery and early warning mechanisms enhanced.

Duration: 01 January 2019 -31 December 2020

Theory of change: The AHS observation network consists of 47 meteorological stations and 7 hydrological (river basins) stations with 94 gauges. Five meteorological stations are functioning over 100 years.

A complex assessment for modernization has been conducted by the World Bank in 2017, providing justifications for introduction of an enhanced and modernized hydro-meteorological early forecast and response systems, to significantly increase the effectiveness of forecast and response activities, as well as adaptation planning.

It identified shortcomings related to the capacity of the AHS and related to basic forecast of temperature, precipitation and wind in the short and medium term at high accuracy and spatial resolution. Beyond basic forecasting, disaster risk management has an incremental need for accurate "nowcasting"-forecasting over the period of up to six hours. Nowcasting makes use of radar, upper-air sounding, stream gauge data (ideally reporting automatically in real time), rapid national weather and hydrological modelling at high resolution, and effective telecoms linking the national network of weather stations to headquarters. Forecaster workstations are needed, to enable forecasters to assemble information, analyses it, and present tailored and updated forecasts rapidly.

The project will provide technical assistance to the Government of Armenia for climate-induced disaster risk planning and national adaptation programming through supporting the national hydro-meteorological observation service improvement in the following 4 main directions:

- (A) generation, processing, exchange, retrieval and distribution of beneficiary tailored hydro-meteorological information;
- (B) improve access to the hydrometeorological information by data user groups;
- (C) better delivery of hazard alerts for adequate response, public safety and economic security; and
- (D) informed planning and decision-making for cost-effective investments in climate-resilient development.

Strengthening these four pillars will significantly solidify Armenia’s resilience to natural hazards and climate change and help enhance the economic performance of weather-dependent sectors such as agriculture, energy, transport and water resources management.

Implementing Partner: Ministry of Environment the Republic of Armenia

Responsible Partner: United Nations Development Programme

II. RESOURCES AND FINANCIAL PERFORMANCE

	Total Project Budget (USD)	Current Year (2020)			All Years Delivery as of SPR date (USD)	All Years Delivery rate as of SPR date (%)
		Annual Budget (USD)	Delivery as of SPR date (USD)	Delivery rate as of SPR date (%)		
Russian Trust Fund	800,000	300,000	19,830	6.61	520,780	65.09
Total	800,000	300,000	19,830	6.61	520,780	65.09

III. RESULTS, PROGRESS

Sustainable Development Goal 13/Target 13.1: Climate Action / Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

UNDAF Outcome 7/ CPD Outcome 4. (Outputs 4.1, 4.2) By 2020, sustainable development principles and good practices for environmental sustainability resilience building, climate change adaptation and mitigation, and green economy are introduced and applied.

UNDP Strategic Plan 2018-2021. Outcome 1/Output 1.3.1. National capacities and evidence-base assessment and planning tools enable gender-responsive and risk-informed development investments including for response to and recovery from crisis.

Output indicator: Number of countries with development, risk reduction and recovery interventions informed by multi-hazard and other risk assessments.

Project’s progress vis-à-vis the Results and Resources Framework of Prodoc.

- A law company contracted for drafting of policy and providing advice on drafting “Disaster Risk Management and Population Protection Law” package.
- Microstep-MIS Slovakian company supplied the equipment of hydrometeorological weather stations including construction of masts in Armavir, Aragatsotn, Shirak, Lori and Vayots Dzor regions. The installation of the stations postponed to mid-June 2020 due to travel restrictions.

Activity/Output	Expected Results	Amount (\$)	Current Year (2020)					
			Planned				Actual	
			Q1	Q2	Q3	Q4	Status	Comments
Output 1: Hydro-meteorological observation and forecasting system enhanced and modernized.	AHS capacity building process and advance technology utilization training organized in partnership with Russian experts from Roshydromet and other relevant institutions.			X	X	X		

Output 2: Hydrometeorological observation and warning infrastructure improved	Rehabilitation of high priority meteorological observing stations; 23 Automatic Weather Stations, rain gauges, standard equipment, power supply, telecoms for field stations installed	92,000		x	x	x		
	Data collection and analysing system equipment procured	22,000		x	x			
Output 3: Early warning mechanisms established	Drafting of policy and providing advice on drafting “Disaster Risk Management and Population Protection Law” package	8,500	x	x			In progress	
	Develo							

IV. GENDER MAINSTREAMING RESULTS

The project corresponds to UNDP Gender Marker GEN-2 score, in line with the respective outputs of the 2016-2020 Country Programme Document signed with the Government of Armenia. Gender equality and women’s empowerment parameter is aimed to be a significant objective of the output.

V. RISKS, CHALLENGES, LESSONS LEARNED

- *Challenges:* Due to the current situation related to Covid-2019 the planned activities are shifted to 3 months period. Although the equipment of Automatic weather stations had procured and delivered, the installation most probably will start in end-June 2020.

VI. COMMUNICATION AND PARTNERSHIPS

- NA

VII. EVALUATIONS

- NA

VIII. PROCOC CHANGES, HORIZON SCANNING

- NA

IX. VALIDATION OF RESULTS (FIELD VISIT) AND QUALITY ASSURANCE

- NA

X. FUTURE ACTIONS, WORK PLAN

- The project will implement installation of AWS stations and formulation of data management and weather forecasting consolidated network.
- The new AWS systems for agriculture and transport sectors will be procured and installed in one of the project target regions aimed to development of unified module for use of different sources and technologies for proper weather forecast and delivering services to relevant fields.
- Climate risk atlas will be developed in 5 target regions in partnership with Roshydromet and Cadaster institute of Russia.
- Basic trainings and ToT on use of AWS will be organized for AHS staff.
- Mission to Roshydromet will be organized for the formulation of joint action plan for further capacity building of AHS staff.
- Official website will be developed for AHS.

Resource Results Framework

Intended Outcome as stated in the UNDAF/Country Programme Results and Resource Framework:

UNDAF Outcome 7/CPD Outcome 4 (Outputs 4.1, 4.2) By 2020, sustainable development principles and good practices for environmental sustainability resilience building, climate change adaptation and mitigation, and green economy are introduced and applied.

Outcome indicators as stated in the Country Programme Results and Resources Framework, including baseline and targets:

Indicator 4.1: No. of innovative tools/approaches introduced to promote environmental sustainability and resilience principles. Baseline: 0; Target: 20

Indicator 4.2: No. of communities benefiting from innovative disaster risk reduction/resilience measures and practices Baseline: 0; Target: 5

UNDP Strategic Plan 2018-2021. Outcome 1/ Output 1.3.1. National capacities and evidence-base assessment and planning tools enable gender-responsive and risk-informed development investments including for response to and recovery from crisis.

Output indicator: Number of countries with development, risk reduction and recovery interventions informed by multi-hazard and other risk assessments.

Project title and Atlas Project Number: Increase Resilience of Armenia to Climate Change through Modernization of Armenia's Hydrometeorological Service/00110609

EXPECTED OUTPUTS	OUTPUT INDICATORS	DATA SOURCE	BASELINE		TARGETS (by frequency of data collection)				DATA COLLECTION METHODS & RISKS	
			Value	Year	Year 1		Year 2			FINAL
					Target	Result	Target	Result		
Output 1. Hydro-meteorological observation and forecasting system enhanced and modernized.	<i>1.1 Technical capacity of AHS staff for better forecasting, early warning and management are enhanced. Ensure gender-balanced groups (30-40% women).</i>	<i>World Bank assessment report</i>	0	2018	30%	10%	30%		60%	<i>UNDP report, formal documents, LoPs</i>
	<i>1.2. The capacity to operate the hydro-meteorological radio locator system DMRL- C or DMRL-10 are developed.</i>	<i>MES-Antigrad-WMO assessment report</i>	0	2018	0	0	50%		50%	<i>UNDP report, formal documents, transfer act</i>

	<i>1.3: Modern forecasting tools and methodologies for weather and hydrological forecasting is introduced to improve accuracy, lead time and spatial resolution of forecasts. Involve female specialists in needs assessment and decision-making.</i>	<i>World Bank assessment report</i>	0	2018	0	0	1 toolkit		1 toolkit	<i>LoPs, media UNDP report, formal documents, transfer act</i>
Output 2: Hydrometeorological observation and warning infrastructure improved	<i>2.1 Meteorological and hydrological observation networks are rehabilitated, matching observation network design and a maintenance programs are installed.</i>	<i>World Bank assessment report DRM National Strategy</i>	0	2018	20%	0	40%		60%	<i>UNDP report, formal documents, transfer act</i>
	<i>2.2 Data collection and communication equipment and devices are upgraded</i>	<i>World Bank assessment report</i>	0	2018	10 stations	0	10 stations		20 stations	<i>UNDP report, formal documents, transfer act</i>
	<i>2.3 Real time forecasting system through use of radar, upper-air sounding system are enhanced</i>	<i>World Bank assessment report</i>	0	2018	30%	0	40%		70%	<i>UNDP report, formal documents</i>
Output 3: Hydro-meteorological service delivery and early warning mechanisms are enhanced.	<i>3.1 Enhanced integrated disaster loss data management system established to unify, analyse and disseminate all incoming and outgoing data.</i>	<i>World Bank assessment report DRM National Strategy</i>	0	2018	30%	0	40%		70%	<i>UNDP report, formal documents</i>
	<i>3.2 Climate risk mapping will be conducted for the targeted five marzes; Armavir, Aragatsohn, Vayots Dzor, Shirak and Lori with differentiated level of access for beneficiaries. Ensure at least 30-40% women as respondents. In focus groups, etc</i>	<i>World Bank assessment report DRM National Strategy SFDRR</i>	0	2018	40%	0	40%		80%	<i>UNDP report, formal documents</i>

	<i>3.3 Climate risk mapping conducted for the targeted five marzes; Armavir, Aragatsotn, Vayots Dzor, Shirak and Lori.</i>	<i>World Bank assessment report</i>	0	2018	40%	0	40%		80%	<i>UNDP report, formal documents</i>
	<i>Visibility, utility and credibility of the hydro-meteorological service are improved by facilitating access through modern communication technologies.</i>	<i>World Bank assessment report DRM National Strategy</i>	0	2018	30%	0	40%		70%	<i>UNDP report, formal documents</i>

OFFLINE RISK LOG

Project Title: Increase Resilience of Armenia to Climate Change through Modernization of Armenia's Hydrometeorological Service						Award ID: 00111782		Date: 01.01.2019- 31.12.2020	
#	Description	Date Identified	Type	Probability & Impact	Risk treatment/ Measurements	Risk owner	Submitted updated by	Last Update	Status
1	The poor condition of meteorological and hydrological observation networks and inefficient information exchange.	01.09.2018	Operational	P = 3 I = 3 Inefficient level of information exchange and weather forecast.	Observation infrastructures need to be strengthened urgently to provide the local climate information, which is required for various applications.	Armen Chiling aryan	UNDP	15.04.2020	No change
2	Limited financial, technical and institutional capacities, hindering agencies such as AHS, Ministry of Emergency Situations, Water Management State Committee, agriculture extension services and others to fulfil their core mandates.	01.09.2018	Operational Organizational	P = 3 I = 3 Inability to fulfil its mandate and provide qualified services	Socio-economic studies of the World Bank demonstrate the benefit to cost ratio of investing in Armenia Hydromet Service is high.	Armen Chiling aryan	UNDP	15.04.2020	No change
3	Information and alerts are not adapted to the day-to-day needs of the users (both in terms of content, format and timing). Mechanisms for the translation of forecasts into early warning information for critical response and for activating action at state and community levels are not well established.	01.09.2018	Regulatory	P = 3 I = 2 Lack of qualified information and early warning on weather extremes	Formulation of comprehensive draft legal package on unmanned aerial systems (drones) for Governments consideration.	Armen Chiling aryan	UNDP	15.04.2020	No change
4	Doppler Meteorological Radar (DMRL-10 or DMRL-C) systems to be installed in Shirak and Armavir marzes. At this time, it is confirmed, that the Government will invest USD 2,000.000 by the	01.09.2018	Operational	P = 2 I = 3 Low level forecasting accuracy	Regular meetings with the Government counterparts carried out to explain the importance of investment and show the benefits and returns from investment. The	Armen Chiling aryan	UNDP	15.04.2020	No change

	end of 2019. Based on the Project results and its impact the Government has obliged to invest additional USD 2,000.000.				effectiveness and efficiency of the spending of first tranche will significantly improve the probability for receiving the second tranche. Moreover, significant communication will be established with the private organizations, in order to establish large private public partnership.				
5	Possibility of political modifications in Armenian Government and subsequent shift from the ongoing policy of enhancing AHS capacities.	01.09.18	Operational	P = 2 I = 2	Regular meetings with the Government counterparts carried out to explain the importance of investment and show the benefits and returns from investment.	Armen Chiling aryan	UNDP	15.04.2020	No change
6	Anticipated structural changes in the RA Government may bring to internal re-organization and moving AHS to the RA Ministry of Nature Protection.	12.12. 18	Operational	P = 3 I = 3 Delay in the project implementation	Regular meetings with the Government counterparts to present the project outputs and progress and update the project activities accordingly.	Armen Chiling aryan	UNDP	15.04.2020	No change
7	Strong earthquake or activation of other hazards, that could potentially impede or delay project implementation.	01.09.18	Operational	P = 3 I = 3	Project implementation process coordinated with the AHS and Roshydromet specialists considering existing mitigation measures against earthquake and other secondary hazards, identifying main gaps, and proper solutions.	Armen Chiling aryan	UNDP	15.04.2020	No change

ANNUAL WORK PLAN 2020

EXPECTED OUTPUTS	PLANNED ACTIVITIES	Q1			Q2			Q3			Q4			PLANNED BUDGET	
		1	2	3	4	5	6	7	8	9	10	11	12		
<p>Output 1: Hydro-meteorological observation and forecasting system enhanced and modernized. Baseline: Lack of modern Hydro-meteorological observation and forecasting system. Output Indicators: <i>1.1 Technical capacity of AHS staff for better forecasting, early warning and management are enhanced.</i></p> <p><i>1.2: Modern forecasting tools and methodologies for weather and hydrological forecasting is introduced to improve accuracy, lead time and spatial resolution of forecasts.</i></p>	<p><u>Activity 1.1:</u> Technical training including at least; basic meteorology, hydrology & ICT, maintenance and operation of newly acquired equipment, ICT, data processing, analysis & management, geographical information systems and remote sensing. CMSA students will continue their education and professional development in above mentioned universities on bilateral bases including Master students.</p>													14,301.00USD	
	<p><u>Activity 1.1.2:</u> AHS capacity building process and advance technology utilization training will be organized in partnership with Russian experts from Roshydromet and other relevant institutions.</p>														
	<p><u>Activity 1.2.1:</u> The forecasting tools will be assessed and introduced for identification of desired level of accuracy and subsequent models for localization in Armenia, taking into account the existing experience and capabilities of the Roshydromet.</p>														

<p>Output 2: Hydrometeorological observation and warning infrastructure improved</p> <p>Baseline: Lack of modern Hydrometeorological observation and warning infrastructure</p> <p>Output Indicators: <i>2.1 Meteorological and hydrological observation networks are rehabilitated, matching observation network design and a maintenance programs are installed.</i></p> <p><i>2.2 Data collection and communication equipment and devices are upgraded</i></p> <p><i>2.3 Real time forecasting system through use of radar, upper-air sounding system are enhanced</i></p>	<p><u>Activity 2.1:</u> An assessment will be conducted in target 5 regions and terms of references, and technical specifications for the equipment will be developed for agricultural and transport weather stations.</p>													
	<p><u>Activity 2.1.1:</u> Rehabilitation of high priority meteorological observing stations; expansion and upgrading of the surface meteorological network: Automatic Weather Stations, rain gauges, standard equipment, power supply, telecoms for field stations will be acquired and installed</p>													
	<p><u>Activity 2.1.3:</u> Expansion and upgrading of hydrological stations and specialized hydrological equipment will be done for rivers and reservoirs. Following a reorganization of the hydrological network, current meters, new automated water-level recorders will be installed as needed to meet new operational needs for flood-prone watersheds.</p>													
	<p><u>Activity 2.1.4</u> The newly established stations will be synchronized with the existing meters, to ensure the sustainability and accuracy of generated information flow. The professional capacities of staff will be increased to ensure effective maintenance of acquired equipment.</p>													
	<p><u>Activity 2.2.1</u> Data storage and management systems including ICT hardware and software for remote sensing and customized tools for GIS, risk modelling and forecasting will be developed/updated and enhanced based on needs assessment conducted jointly with AHS and Roshydromet.</p>													
													195,760.00USD	

<p>Output 3: Hydro-meteorological service delivery and early warning mechanisms are enhanced.</p> <p>Baseline: Lack of modern Hydro-meteorological service delivery and early warning mechanisms.</p> <p>Output Indicator: <i>3.1 Enhanced integrated disaster loss data management system established to unify, analyses and disseminate all incoming and outgoing data.</i> <i>3.2 Visibility, utility and credibility of the hydro-meteorological service are improved by facilitating access through modern communication technologies.</i></p>	<p><u>Activity 3.1.1:</u> Support in establishment of integrated disaster loss data management system, including proper registration of hydro-meteorological emergencies and formulation of loss data statistics, including the historical data, as well as specifications for forecasting models and analysis.</p>													43,780.00 USD
	<p><u>Activity 3.2.1</u> Specialized weather, climate and hydrological products and services will be developed and distributed through the modern communication technologies in close cooperation with Roshydromet, tailored to sector specific needs (agriculture, water resources management, infrastructures, transport, energy disaster risk management, etc.).</p>													
	<p><u>Activity 3.1.3</u> The climate risk mapping will be conducted for the targeted five marzes; Armavir, Aragatsotn, Vayots Dzor, Shirak and Lori with differentiated level of access for beneficiaries.</p>													
	<p><u>Activity 3.1.4</u> UNDP will support the AHS in formulation of legislative amendments in the sphere of Hydrometeorological service by provision of proper expertise.</p>													
<p>General Management Support</p>	<p>Project Management and implementation</p>													46,159.00 USD