"STRENGTHENING THE ADAPTABILITY CAPACITIES OF ECOSYSTEMS AND COMMUNITIES RELATED TO THE SPECIALLY PROTECTED NATURE AREAS OF RA" PROJECT

FINAL EVALUATION REPORT

YEREVAN 2023

CONTENTS:

INTRODUCTION:

Project description

" Strengthening the adaptive capacity of ecosystems and communities adjacent to the special protected natural areas of the Republic of Armenia " program (hereinafter referred to as the Program) was developed and implemented by the state institution "Environmental Program Implementation Office" of the Ministry of Environment of the Republic of Armenia.

On November 4, 2016, the "Environmental Program Implementation Office" state institution was accredited to the Adaptation Fund of the UN Framework Convention on Climate Change. The project application was developed in accordance with the guidelines provided by the Adaptation Fund and the priority national development and adaptation plans, as a result of multi-stakeholder discussions with all stakeholders, and was submitted for approval by the Adaptation Fund on 6 August 2018. According to the decision of the session of March 13, 2019, the "Environmental Program Implementation Office" state institution, as the national implementing body, received the grant program in the amount of 2,506,000 USD.

The project is implemented in two Special Nature Protected Areas (SPAs). In the communities adjacent to **the "Khosrov Forest" state reserve** in Ararat Marz (south-east of the capital) in the south-west of Armenia and the Dilijan **National Park in the Tavush Marz in the north-east of Armenia:** Dilijan, Urtsadzor enlarged , Margahovit and Fioletovo. The two protected areas are protected natural ecosystems, but the surrounding communities are faced with livelihood problems in conditions of high levels of poverty and limited resources, and have limited opportunities to increase the adaptation of production systems and communities to land degradation, sustainable management of the region's biodiversity, and the effects of climate change.

Below is the map of the beneficiary communities of the Project.

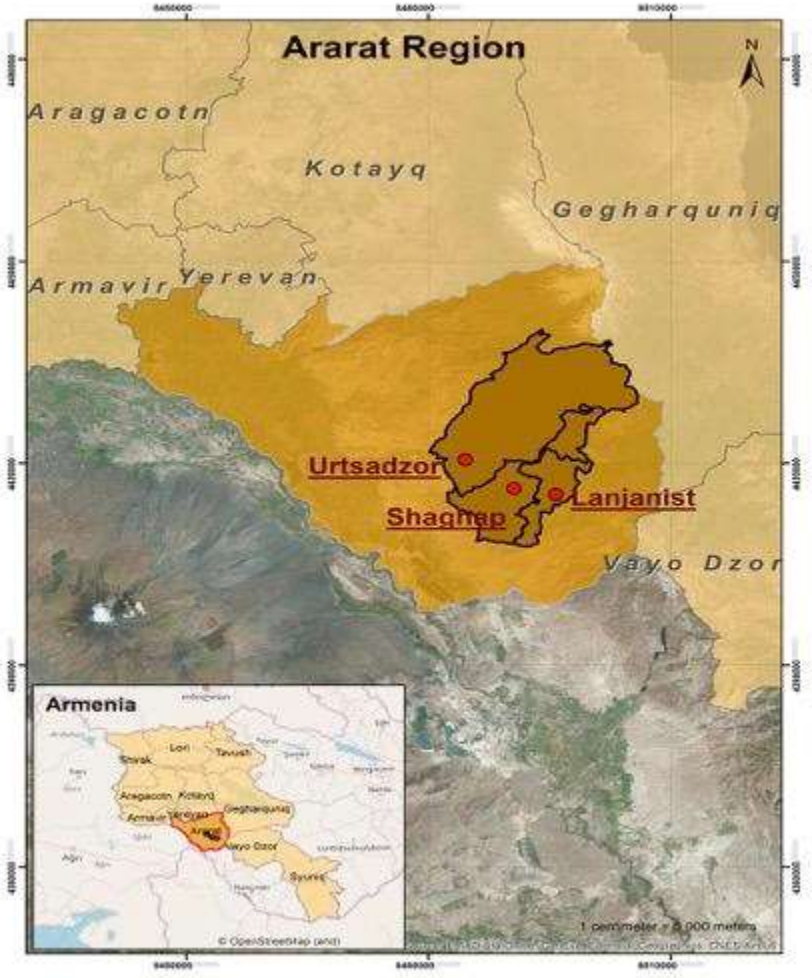


Figure 1: Ararat region, Urtsadzor, Lanjanist, Shaghap settlements

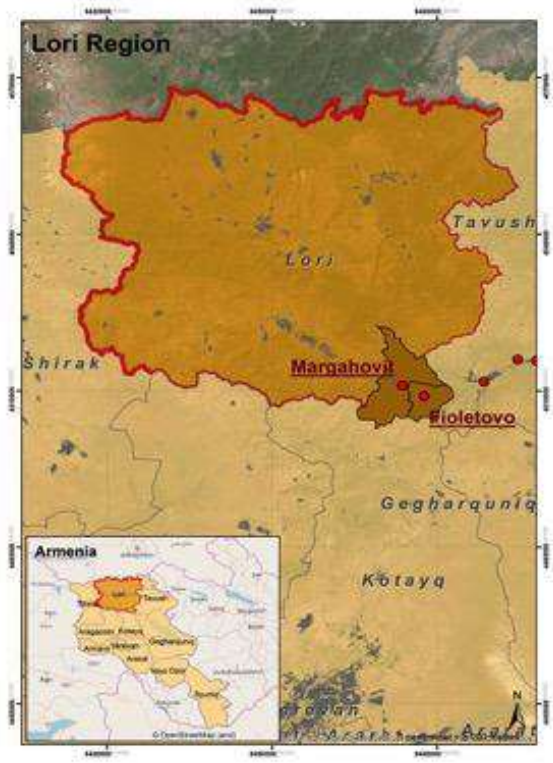


Figure 2: Lori Region

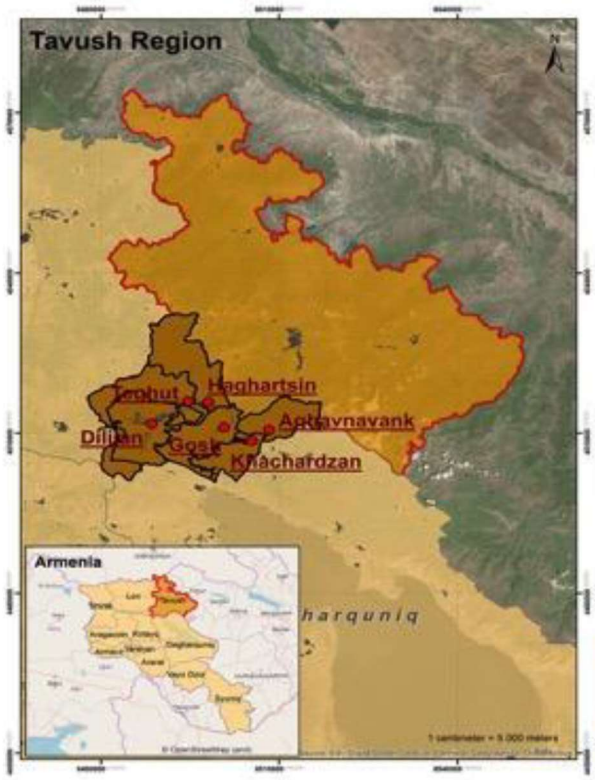


Figure 3: Tavush marz

Project objectives

The overall objective of the project is to reduce the vulnerability of local communities in the "Khosrov Forest" State Reserve and the "Dilijan" National Park to climate risks through the strengthening of institutional and planning capacities in order to strengthen the adaptation of the agricultural sector and increase adaptation to climate change.

The goal of the project is to reduce the vulnerability of local communities adjacent to "Khosrov Forest" and "Dilijan" National Park to climate risks, to strengthen agricultural and institutional planning capacities, and to increase the level of adaptation of ecosystems in the face of climate change.

A task has been set to achieve the goals of the project.

- contribute to meeting the challenges of global climate change by strengthening community capacity;
- contribute to increasing the level of awareness and knowledge of selected target groups regarding effective adaptation measures in the face of global and regional climate change,
- to increase the adaptability of natural and agricultural ecosystems by ensuring the effectiveness of the planned measures,
- support the decision-making process to acquire the necessary skills to analyze the current situation of natural and agricultural ecosystems under climate change, to develop and review the list of necessary actions and to establish effective and collaborative relationships with stakeholders;
- to increase the awareness and knowledge of students, pupils, members of the teaching staff regarding modern adaptation measures of agricultural and natural ecosystems under climate change conditions,
- involve the mass media and non-governmental organizations in the implementation of the project, the promotion of results and ensuring sustainability, as well as the methods and forms of providing public information.

The project plans to carry out the following actions:

- Increase the efficiency of pastures, grasslands and arable lands,
- to create a stable fodder base by sowing korganan,
- build fruit and herb solar dryers and unheated greenhouses,
- establish orchards with traditional and drip irrigation,
- establish and demonstrate the effectiveness of anti-hail network protection,
- restore the degraded sloping slopes by establishing an agroforestry,
- build drip and traditional irrigation systems,
- establish berry plantations and carry out mulching works,

- to repair the roads in the middle of the field and build watering points in the pastures,
- introduce new heat-resistant and drought-resistant vegetable varieties and hybrids,
- demonstrate the possibilities of growing herbs,
- establish 2 field schools,
- to increase the level of knowledge and awareness of the population regarding the ongoing works and adaptation measures under climate change conditions,
- Creation of a monitoring system of works carried out within the framework of the project,
- capacity building of municipalities and eco-clubs.

Project components, expected results, costs and timelines

The program has three components.

Component 1: Implementing community-based smart farming practices in degraded areas and buffer zones,

Component 2: Strengthen and implement climate-resilient smart technologies and value chains in vulnerable rural communities,

Component 3: Raising awareness, capacity building, monitoring and decision-making on climate-resilient smart agricultural practices.

Project components, expected results and funding

Program components	The main expected result	Expected side effects	Estimated amount (US: dollar)
Component 1: Implementing community-based smart farming practices in degraded areas and buffer zones	**Result 1:** Community-based smart agricultural practices are implemented in degraded areas, reducing the vulnerability of production systems and protected areas to climate risks.	**Outcome 1.1.** Irrigation water supply systems have been restored, water use efficiency has increased **Outcome 1.2.** Water-saving drip irrigation systems are installed in selected community gardens **Outcome 1.3.** Existing cross-country roads leading to remote pastures and degraded land have been rehabilitated **Outcome 1.4.** Perennial planting areas have been created - pasture degradation has decreased **Outcome 1.5.** Community pastures and grasslands have been restored and adaptation has increased **Output 1.6** Water desalination points are constructed **Outcome 1.7.** Degraded sloping slopes have been restored, where new perennial, drought-tolerant species have been planted	**1: 733 183**

Component 2: Strengthening value chains and making climate-resilient smart technologies accessible to vulnerable rural communities Strengthen and implement climate-resilient smart technologies and value chains in vulnerable rural communities	**Result 2:** Agricultural production value chains are strengthened and climate-smart technologies are accessible to vulnerable rural communities, including women and men equally.	**Outcome 2.1.** Implementation of "climate-resistant smart agricultural" technologies **Outcome 2.2.** Greenhouses with unheated light constructions are built in the areas of the target communities **Outcome 2.3.** Solar dryers are installed in the areas of the target communities **Sub- result 2.4.** Community management and business plans are being developed for the climate smart agricultural value chain	**342 397**
Component 3: Raising awareness, capacity building, monitoring and decision-making on climate-resilient smart agricultural practices	**Result 3:** In the target communities, the level of awareness, planning, monitoring and decision-making regarding climate-resilient smart agricultural production methods and HRM has increased.	**Outcome 3.1.** Through farm field schools and agrogitadiaspora services, climate-smart agriculture and CDM best practices have been disseminated to target communities. **Outcome 3.2.** Best practice examples and training materials on climate smart agriculture are compiled, shared and accessible **Outcome 3.3.** Community-based adaptation planning	**200,000**

		has been implemented for target communities **Sub- result 3.4.** Strategies to ensure climate-resilient and gender-balanced agriculture and CDF have been developed in the target communities. **Outcome 3.5.** Land adaptation measures have been established for the target communities neutral soil degradation monitoring system	
3. Total ingredients			**2: 275 580**
4. Project management costs			**34130**
5 Total project cost			**2309710**
6. Project implementation costs *			**196290**
Amount of funding required			**2 506 000**

* include author's and technical supervision, intermediate and final external monitoring of the project, intermediate and final external audit, intermediate and final missions of AF experts.

NSD - neutral soil degradation

Schedule of the project

Phases of the project	Expected dates
Start of project implementation	2019
Mid-term (if planned)	2020
End of project	2021
Summative evaluation	2022

The total duration of the program is 3 years (36 months).

Of coronavirus with an epidemic due to of the project completion deadlines be extended are for 1 year.

Comparison of environmental risks and cost-effectiveness

Comparative analysis of environmental risks and cost-effectiveness of interventions

Options	Fertilization	Cost (USD)	Environmental risks	Selected option	note
Increasing the adaptability of arable land to climate change (calculated per hectare)					
Traditional 1:	$N_{300}P_{300}K_{150}$ kg/ha	280:	intensive growth of harmful plants , - increase of nitrate content in crops , deterioration of health of residents, violation of the ecological balance of the environment .	Alternative option 2 Alternative option 6	The chosen option is environmentally safe, because mineral fertilizers are selected in the amount that cannot have a negative impact on the quality of the crop and human health. At the same time, these options will help restore the balance of macro elements in the soil, which was disturbed during the last 30 years, because phosphorus and potassium fertilizers were not used. During irrigation or rains, zeolite absorbs water, which is later used by plants. Zeolite composites contain available potassium, which in turn is reused by plants.
Alternative option 1	5t/ha biohumus	400	Does not contain environmental risks		
Alternative option 2	$N_{100}P_{100}K_{50}$ + 1.5 t/ha, biohumus	228	Environmental risks are minimized		
Alternative option 3	1.0t/ha biohumus + 1t/ha zeolite	225	Does not contain environmental risks		
Alternative option 4	3t/ha "ORGANOMICS"	295	Does not contain environmental risks		
Alternative option 5	$N_{100}P_{100}K_{50}$ kg/ha + 1.0 t/ha, "ORGANOMICS"	210	Environmental risks are minimized		
Alternative option 6	$N_{100}P_{100}$ kg/ha + 1.5 t/ha, "ORGANOMICS" + 0.6 t/ha zeolites	245	Does not contain environmental risks		

Traditional 2:	Fertilize in the fall (leave the soil uncultivated for 1 year) + 25t/ha of manure + tillage in the spring and let the soil rest until the fall	377	Does not contain environmental risks		In terms of soil fertility, this option is effective but cannot be implemented as farmers will be deprived of crops and livelihoods during that year.	
Increasing the adaptability of pastures to climate change (calculated per hectare)						
Traditional	$N_{200} P_{300} K_{150}$ kg/ha	230	intensive growth of harmful plants , risk of animal poisoning, disruption of the ecological balance of the environment, increase in the concentration of nitrates and heavy metals in milk and meat in the spring.	Alternative version 3 Alternative version 6		The selected option is environmentally safe, the efficiency is high, the balance of macro elements is restored in the soil.
Alternative option 1	4 t/ha "ORGANOMICS"	392	It does not pose environmental risks, but the restoration of the turf is very slow			
Alternative option 2	$N_{50} P_{100} K_{50}$ kg/ha +1.0 t/ha, "ORGANOMICS"	245	It does not contain environmental risks, but the restoration of the grass is very slow			
Alternative option 3	$N_{50} P_{70} K_{50}$ +1.0t/ha "ORGANOMICS" + additional sowing	217	There are no environmental risks, and the turf regenerates quickly			

Alternative option 4	4t/ha biohumus	368	It does not pose environmental risks, but the restoration of the turf is very slow		
Alternative option 5	$N_{50}P_{100}K_{50}$ + 1.0 t/ha biohumus	198	It does not pose environmental risks, but the restoration of the turf is very slow		
Alternative option 6	$N_{50}P_{70}K_{50}$ + 1.0 t/ha biohumus + additional sowing	203	There are no environmental risks, and the turf regenerates quickly		
Increasing adaptation of grasslands to climate change (calculated per hectare)					
Traditional	$N_{200}P_{300}K_{150}$ kg/ha	285	Pollution of natural resources (water, soil), intensive growth of harmful plants , increase of nitrate content in crops, disruption of the ecological balance of the environment	Alternative version 3 Alternative version 6	The selected option is environmentally safe, the efficiency is high, the balance of macro elements is restored in the soil.
Alternative option 1	5 t/ha "ORGANOMICS"	490	It does not contain environmental risks, but the restoration of the grass is very slow		
Alternative option 2	$N_{100}P_{150}K_{60}$ +2.0 t/ha "ORGANOMICS",	276	It does not pose environmental risks, but the restoration of the turf is very slow		
Alternative option 3	$N_{100}P_{100}K_{60}$ + 1.0 t/ha "ORGANOMICS" + additional sowing	246	There are no environmental risks, and the turf regenerates quickly		
Alternative option 4	5 t/ha of biohumus	470	It does not pose environmental risks, but the restoration of the turf is very slow		

Alternative option 5	$N_{100} P_{100} K_{60}$ +1.0 t/ha biohumus	216	It does not pose environmental risks, but the restoration of the turf is very slow		
Alternative option 6	$N_{100} P_{100} K_{60}$ + 1.0 t/ha biohumus + additional sowing	227	There are no environmental risks, and the turf regenerates quickly		
Increasing adaptation of degraded slopes to climate change (calculated per hectare)					
Traditional	1000m^3 black soil + additional sowing	56,000	There are no environmental risks, but it is likely that heavy rains in the spring will erode the soil and expose the most degraded areas again. Environmental risk is related to black soil mining areas	Alternative version 2	The option is selected for areas whose degree of degradation does not allow to restore the previous form of the landscape
Alternative option 1	500 $m3^{black}$ soil + 5t/ha biohumus + additional sowing	21960	There are no environmental risks, but it is likely that heavy rains in the spring will erode the soil and expose the most degraded areas again. Environmental risk is related to black soil mining areas		
Alternative option 2	Planting a forest (2500 plants) and 5 times manual irrigation	10500	Does not contain environmental risks		
Rehabilitation of inter-country roads (calculated per 1 km)					
Traditional	No work is being done on the site or on the pile of gravel to be dumped in some parts of the site	0-200	The inhabitants do not use the arable land and grassland. Arable land turns into pasture land. The pressure on the relatively available space is increasing. As a result of exploitation, pasture and grassland degradation is accelerating.	Alternative version 2	Pressure on natural and agricultural ecosystems is increasing. Communities can

Alternative option 1	Only earthworks are carried out	500	Access to arable land and grasslands is limited as heavy rains caused by climate change erode road surfaces and truck roads are rutted. The pressure on natural and agricultural ecosystems will continue to increase in the coming years.		use the savings to rehabilitate roads to remote pastures and create conditions for the adaptation of degraded community areas.
Alternative option 2	Land leveling works are done only in a few areas and rainwater drainage pipes are installed	7000-7900	Does not contain environmental risks		
Measures aimed at saving irrigation water (calculated per 1 km)					
Current state:	The irrigation water system is not restored or only the most damaged parts are restored	0-500	The loss of irrigation water is constantly increasing. Agricultural land remains uncultivated and degraded. In order to generate income, residents increase the pressure on natural ecosystems.	Alternative version 2	Irrigation water is saved. Residents have the opportunity to irrigate new areas, earn more income and reduce pressure on natural ecosystems.
Alternative option 1	Complete rehabilitation of the irrigation network	1000-1500	It does not pose any environmental risks, but the irrigation water will not meet the needs of the residents in the conditions of climate humidity and high summer temperatures.		
Alternative option 2	Restoration of the most damaged parts and installation of a drip irrigation system	2000-2500	Does not contain environmental risks		

Introduction of heat-resistant and drought-resistant new crops and seeds (calculated per 1ha)					
Traditional	No work is being done in this area. Residents of rural communities continue to cultivate old varieties and do not diversify the range.	850-930	Human dependence on natural resources is increasing, and natural resources are rapidly depleting due to intensive use. At the same time, anthropogenic pressure on natural ecosystems will increase.	Alternative version 1	Residents of rural communities receive high income, therefore their socio-economic condition improves.
Alternative option 1	Residents of rural communities develop new crops and varieties using organic fertilizers.	1150-1350	Does not contain environmental risks		

Output range

Framework for results, including milestones, targets and indicators

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
Goals. reducing the vulnerability of local communities adjacent to the "Khosrov Forest" State Reserve and "Dilijan" National Park to climate risks by strengthening institutional and planning capacities in order to strengthen the adaptation of the agricultural sector and increase adaptation to climate change.	• Total number of project beneficiaries (direct and indirect) • percentage of female beneficiaries • HCG monitoring system	0 beneficiaries CHD monitoring system (no)	5000 30% no	16000 40% yes	Reports, studies prepared once every 6 months	PSIG with the support of the Ministry of Education and Culture

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
Component 1: Community-based, climate-resilient smart agricultural practices in degraded areas and buffer zones						
Result 1: Community-based , climate-smart agricultural practices are implemented in degraded areas, reducing the vulnerability of production systems and protected areas to climate risks.	• Total area of reclaimed and enhanced adaptive soils • Reduced water loss in irrigation systems • % of livestock using adapted pasture management,	xx ha of degraded areas in target communities Water loss in the irrigation system (70%) • 10% of livestock use the grazing of adapted pastures.	xx ha re-purchased area (xx%) Water loss in the irrigation system (50%) 30% of livestock	xx ha re-established area (xx%) Water loss in the irrigation system (30%) 50% of livestock	Project reports, surveys, every 6 months	PSIG and target communities

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
Intermediate result 1.1. Irrigation water supply systems have been restored, increasing the efficiency of water use;	Restored section of the irrigation system # m Installed Solar Water Heaters #	Not decided	6100m restored section Number of pumps installed -1	120m restored section Number of installed pumps - 3	Project reports, surveys, every 6 months	PSIG and target communities
Intermediate result 1.2. Water-saving drip irrigation systems are installed in selected community gardens;	# ha of gardens with drip irrigation system	Not decided	1 ha installed drip irrigation	5.2 ha installed drip irrigation	Project reports, surveys, every 6 months	PSIG and target communities
Intermediate result 1.3. Existing cross-country roads leading to degraded lands of remote pastures have been rehabilitated;	% Percentage of degraded / restored field roads # km of restored field roads # of culverts installed			30% re-surfaced field paths 39.5 km of reclaimed field roads 50 culverts installed	Project reports, surveys, every 6 months	PSIG and target communities

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
1.4: Perennial croplands are established, reducing pasture degradation	# ha of perennial plants		0 ha of perennial crops	10 ha of perennial plants	Project reports, surveys, every 6 months	PSIG and target communities
Intermediate result 1.5. Community pastures and grasslands are restored and their adaptability improved	# ha of restored grassland and arable land # ha of restored pastures		100 ha of grasslands , lawns and arable lands have been restored.	1382 hectares of re-purchased grasslands, lawns and arable land	Project reports, surveys, every 6 months	PSIG and target communities
Intermediate output 1.6 Livestock herds are constructed;	# built cake	number of cakes built	number of built cakes - 5	The number of cakes made - 1 5	Project reports, surveys, every 6 months	PSIG and target communities
Intermediate result 1.7. Degraded slopes are restored by planting zones of perennial, perennial plants	# ha of degraded slopes restored through the establishment of agro-forestry		1 ha established agro-forest	3 ha established agro-forestry	Project technical reports, mid-term and final studies	PSIG and target communities

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
Component 2 Strengthening value chains and transferring climate-resilient smart technology to vulnerable communities						
Result 2: Agricultural value chains are strengthened and climate-smart technologies are available to vulnerable rural communities.	• Total number of beneficiaries benefiting from climate-resilient smart technologies • Increasing revenue or preventing revenue decline • Percentage of women beneficiaries benefiting from climate-resilient smart technologies	Not decided	50 beneficiaries 30% female beneficiaries	350 beneficiaries 50% female beneficiaries	Project reports, surveys, every 6 months	PSIG and target communities
2.1 Implementation of smart agricultural technologies	X ha my herb garden, X ha installed anti-hail nets		0.1 ha of herb planting, 1 ha anti-torch nets	0.5 ha of herbs, 2.5 ha anti-torch nets Planting and mulching 3.6	Project reports , surveys, every 6 months	PSIG and target communities

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
	Planting and mulching X ha of shrubs			X ha of bushes		
Intermediate result 2.2. Greenhouses with unheated light constructions are built in the areas of the target communities	m 2 built greenhouses number of greenhouse beneficiaries # greenhouse beneficiary % of women		1000 m 2 built greenhouses 30 beneficiaries 40% of beneficiaries are women	3000 m 2 built greenhouses 100 beneficiaries 70% of beneficiaries are women	Project reports, surveys, every 6 months	PSIG and target communities

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
Intermediate result 2.3. Solar dryers are installed in the areas of the target communities	m 2 built solar dryers number of beneficiaries engaged in solar dryers % of women using solar dryers		100 m 2 built solar dryers 66 beneficiaries Of which 53% are women	150 m2 built solar dryers 100 Beneficiaries: Of which 80% are women	Project reports, surveys, every 6 months	PSIG and target communities
Intermediate result 2.4. Business plans for community governance and climate-resilient smart agricultural value chains are formulated	# Community governance and business plans are formulated for climate-resilient, smart agricultural value chains	No business plan has been formulated	2 business plans have been formulated	2 business plans have been formulated	Business plans are available	PSIG and target communities
Component 3 Awareness raising, capacity building, monitoring and decision-making for climate-resilient smart agricultural practices						
Result 3: In target communities Raising awareness, capacity building, monitoring and decision-making on	Number of beneficiaries benefiting from increased awareness and		200 beneficiaries	300 beneficiaries	Training reports	PSIG and target communities

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
climate-resilient smart agricultural practices and CDM	capacity building on climate-smart agricultural practices and CDM Beneficiary women benefiting from increased awareness and capacity building on climate-resilient agricultural practices and CDM the %		30% female beneficiaries	40% female beneficiaries		
Intermediate result 3.1. Farm field schools and agro-diaspora services are provided to target communities to share climate-smart agriculture and CDM best practices;	# number of beneficiaries aware of climate change impacts and appropriate responses to threats % of women beneficiaries aware of climate change		100 beneficiaries	200 beneficiaries 40% female	Renovation reports	PSIG and target communities

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
	impacts and appropriate responses to threats		30% female beneficiaries	beneficiaries		
Intermediate Output 3.2 Best practice examples and training materials on climate-smart agriculture are compiled, disseminated and accessible;	# training programs and topics Raising awareness at the community level about the threats of climate change		4 customization programs and themes	4 customization programs and themes		
Intermediate result 3.3 community-based adaptation planning in target communities	Community adaptation plans have not been formulated	Not formatted	4 appropriate community-based plans have been formulated	4 appropriate community-based plans have been formulated	Community-based adaptation plans	PSIG and target communities
Intermediate Output 3.4 Appropriate strategies have been formulated to ensure climate-resilient agriculture and CDM in the target areas.	Plans formulated to ensure climate-resilient agriculture in target areas and the sustainability of the MDGs	Not available	1 community-based plan for suitable managemen	3 appropriate community-based plans have been formulated	based plans for adaptive affluence	PSIG and target communities

Result:	Index:	Baseline data	Stages (target, year 1)	Completion of project target	Means of validation	Liability:
			t has been formulated			

EVALUATION BY COMPONENTS

Assessment requirements and objectives

The main goal of the final evaluation of the project is to study and evaluate the progress of the work carried out within the framework of the grant program "Strengthening the adaptation capacities of the ecosystems and communities adjacent to the specially protected natural areas of the Republic of Armenia" and summarize the results.

The Sustainable Development Investment Fund conducted an independent final evaluation of the Project and during the evaluation phase be guided is of honesty and: impartiality principles , trying discover scheduled and: implemented of works volumes , estimate investment efficiency , discover inconsistencies and: to give suggestions.

The key areas of assessment are:

- Project performance and progress;
- efficiency, sustainability and impact;
- gender equality, social and environmental risks,
- implementation of project goals, impact and sustainability perspectives,
- compliance of the implemented actions with the actions planned by the program,
- compliance of implemented works with gender equality, identification of social and environmental risks and application of mitigation measures.

The problem of performance evaluation works

1. The main task of the evaluation is to find out how far the Project has achieved the expected results and the main objective:
   - Community-based smart agricultural practices are implemented in degraded areas, reducing the vulnerability of production systems and protected areas to climate risks.
   - Agricultural value chains are strengthened and climate-resilient smart technologies are made available to vulnerable rural communities, including women and men equally.
   - Awareness is raised in target communities about planning, monitoring and decision-making methods to achieve climate-smart agricultural production and neutralization of land degradation.
2. Provide donor and stakeholders with analysis on program performance and performance indicators.

3. Submit recommendations on compliance, sustainability enhancement, current and future activities.
4. As an additional issue, the recommendations discussed and accepted with the Client for the period from September 2019 to December 30, 2021, as well as in the final reports of the mid-term evaluation of 2022, were considered. degree of implementation during

Evaluation methodology

According to the technical task, the evaluation of the Project should be done in the following categories：

- achieving goals and planned results,
- implementation of sub-results and actions ,
- cost effectiveness and financial planning ,
- effect and stability,
- stakeholder participation and public awareness;
- reproducibility,
- monitoring and evaluation.

Referring to all the mentioned directions during the evaluation, taking into account the fact that they partially overlap, however, he combined some of them and performed the evaluation in the following updated directions：

1. Project performance (including achievement of objectives and planned outputs, and implementation of sub-results and activities);
2. Financial planning and cost effectiveness
3. Stability and reproducibility
4. Stakeholder participation/public awareness

It is too early to make final judgments about the impact, as not enough time has passed since the implementation and completion of the main activities of the Project.

The final reports of the period from September 2019 to December 30, 2021, as well as the mid-term evaluation of 2022 were also the basis for the development of this report .

According to the technical task of the project evaluation, it is required to carry out the evaluation with 6 indicators:

- excellent
- enough
- moderately satisfactory
- Insufficient,
- Moderately insufficient

- Extremely unsatisfactory.

The evaluation team of the Investment Fund for Sustainable Development proposed an evaluation with five (odd-numbered) indicators in order to derive an average evaluation indicator. Those indicators are:

- Excellent/fully done,
- Good/mostly done
- Fair/Average
- Insufficient/incomplete,
- Extremely unsatisfactory/unfulfilled.

Additionally, for indicators that are not discrete and imply a quantitative outcome (e.g., performance), ranges were used:

 <15%: Extremely unsatisfactory/not fulfilled;

 16%-30%: Insufficient/incompletely completed,

 31%-60%: Adequate/Average

 61%-90%: Good/mostly done;

 >91%: Excellent /completely completed.

Organization of assessment

The requirements, reports and reports listed below, as well as the surveys, meetings, discussions, studies and analyzes carried out by our team were the basis for the organization of the results evaluation work .

- Appropriate policy requirements and guidelines for monitoring and evaluation of the Adaptation Fund,
- The grant program "Strengthening the adaptive capacity of ecosystems and communities adjacent to special protected natural areas of the Republic of Armenia",
- Work plans and project budget,
- Reports submitted to the Adaptation Fund,
- Reports, procurement plans and work implementation schedules submitted to the Board of Management.

In addition, based on the Project documents and evaluation requirements, a questionnaire was developed to survey the beneficiaries. The collected information was processed, analyzed and summarized in the final evaluation report.

During the development of the final evaluation report, all the collected necessary documents were studied and analyzed, including the fact sheets presented below:

- The mid-term evaluation report of the results of the program for the period from September 2019 to December 30, 2021, as well as the mid-term evaluation final report for 2022,
- The list of names of the communities and administrative units included in the program and the contact information of the heads,
- The list of eco-clubs formed within the project and the contact information of the managers,
- List of beneficiaries included in the program and contact information.

Indicators subject to evaluation

The activities carried out by the Project Components: scope of results, beneficiaries and actual indicators

Job Title:	Implementing organizations	Start-end of works	Number of beneficiaries	Current status
Development of knowledge management and plan and implementation schedule	"Feature" LLC	2020	Communities covered by the program	The works are finished. Developed a knowledge management plan and implementation schedule
Design, construction, technical and copyright control of solar photovoltaic plants	"Anahit Gevorgyan" JSC, "Sandra Solar" LLC, "Gritig" LLC	2021	Vedi community, 135 beneficiaries are included in the project	The works are finished. 2 photovoltaic plants with a total capacity of 38 kW were built in the Shaghap settlement, which supply electricity to the well pumps.
Establishment of orchards	"Vike Group" LLC C/M	2021-2021	182 beneficiaries	The works are finished. Thornless blackberry and raspberry seedlings were provided to the beneficiaries of Urtsadzor, Aghavnavank, Khachratsin, Haghartsi and Margahovit settlements.

Development of design estimate documents for the repair of cross-country roads and the construction of water treatment points, implementation of repair and construction works, technical and copyright control	" Armenian Water Project Institute " CJSC, " Ijevani Bentonitshin " JSC, " Pailk " LLC, " Improvement " LLC, " Seth Shin " LLC, " Husali Kamar " LLC	2019-2022	Communities included in the program, About 3090 beneficiaries	The works are finished. 38,612 km of cross-country roads were repaired and 11 water treatment points were built.
Development of Management Plans with Business Application	" Boltzman " LLC	2020-2022	Communities covered by the program	Works are finished. 4 management plans have been developed
of degraded pastures, grasslands and arable lands in the administrative units included in the plan of Dilijan and Pambak communities.	" Eco System " LLC	2021-2022	Pastures of settlements exploitative residents. 106 beneficiaries of arable land and grassland	Works are finished. Pigeon wedding ceremony In Teghut and Margahovit settlements, 861 ha of degraded pastures, 96 ha of grasslands and 26 ha of arable land were improved (fertilization with mineral and organic fertilizers).
Establishment of orchards in Dilijan and Vedi communities	" Global Sport " LLC	2021-2022	Gosh, Khachrat, Haghartsin, Hovk, Teghut administrative units of Dilijan enlarged community and Dashtakar administrative unit	Works are finished. 10 6 57 pear, apple, walnut and large-fruited oak saplings were planted .

			of Vedi community, Dilijan city. 196 beneficiaries	
Establishment of field schools	" Outsource " LLC	2021-2022	134 beneficiaries	The works are finished. One field school was established in Dilijan and Vedi communities.
Establishment of experimental medicinal plant plots and improvement of degraded medicinal plant habitats	" Sargis Sargsyan " A / D :	2021-2022	114 beneficiaries	Works are finished. Beneficiaries were provided with thyme, nana and horseradish seedlings and advice on cultivation features . 1.8 ha of degraded habitat was restored
Design, construction, technical and copyright control of the irrigation network in Urtsadzor, Shaghap, Gosh, and Khachrat settlements	" Global Engineer " LLC , " Bidek " LLC , " Artars " LLC	2021-2022	240 beneficiaries	Works are finished. 3 7 0 linear meter irrigation water line was built

resistant , early-ripening, relatively disease-resistant new varieties of vegetable crops in the settlements included in the program	" Ararat Heat Management " LLC, " Scientific center of vegetable and technical crops " CJSC, " Ruslan Beglaryan " A / D :	2021-2022	415 beneficiaries	Works are finished. Tomato, eggplant, sweet potato, lettuce, broccoli seedlings, cucumber seeds were provided to the beneficiaries.
Increasing knowledge and awareness	" Outsource " LLC	2021-2022	Community residents Total number of participants 1,568	Works are finished. 27 courses were organized , 5 of which were online. 7 information leaflets and 8 booklets were prepared and distributed to interested residents.
Establishment of a 5.2ha orchard with drip irrigation and anti-hail network in Urtsadzor and Shaghap administrative units	"Father and Son Beglaryans" LLC	2023	9 beneficiaries	The works started in the spring of 2023, the works were completed in the final phase of the project
Construction of a fence for the protection of orchards in Gosh administrative unit	"S.T.S. Group" LLC	2022	22 beneficiaries	Works are finished. 1600 linear meters of fence was built.
Construction of unheated greenhouses in the settlements included in the program	" Father and Son Beglaryans " LLC , "Avgome Shin" LLC, "Global Support" LLC	2022 -2023	44 beneficiaries	Works are finished

Construction of solar dryers for fruit drying in the settlements included in the project	" Techno City " LLC , "Arshak Geghamyan Levoni" JSC	2022 -2023	43 beneficiaries	Works are finished
Creation of a monitoring system of works carried out within the framework of the project	" Feature " LLC	2022-2023	Communities covered by the program	Works are finished
First interim evaluation of the project	" Kristina Sargsyan Bagrati " JSC	2022	Communities covered by the program	Works n are finished
Second interim evaluation of the project	Sustainable Development Investment Fund	2023	Communities covered by the program	Works n are finished
Capacity building of municipalities, HCs and eco-clubs	"Photon", "Tigran Arakelyan", "Patron", "Arktur"	2021-2023	Communities covered by the program	Works are finished. Computer equipment, office equipment and small-scale agricultural tools were provided to communities and eco-clubs.
Biohumus fertilization of degraded arable land in Urtsadzor and Margahovit settlements	" Eco System " LLC	2022	35 beneficiaries	The works are finished
Establishing a 10ha korganan field in the Langjanist settlement	" Eco System " LLC	2022	10 beneficiaries	The works are finished

Improvement of degraded pastures, grasslands and arable lands in Urtsadzor, Shaghap and Lanjanist administrative units of Vedi community	"Agroatom" LLC	2022	252	The works are finished . 251.0 ha of pastures, 71.0 ha of grassland and 77.0 ha of arable land were improved.
Provision of fruit seedlings to the beneficiaries of Fioletovo community	"Global Sport" LLC	2022	11	The works are finished. 300 pear and apple saplings were provided to the beneficiaries.
Provision of garbage truck to Dilijan community	"Mega Motors" LLC	2022	Residents of the community	Works are finished
Restoration of 3 ha of degraded slopes in the Urtsadzor administrative unit of Vedi community by establishing a forest park and constructing an irrigation network	"Father and Son Beglaryans" LLC	2023	Residents of the community	Works are finished
Provision of saplings of fruit species to the beneficiaries of the administrative unit of Dilijan municipality, Khachyatul	Lernik Aslanyan	2023	25 beneficiaries	The work has been completed
Providing seedlings of vegetable crops to greenhouse beneficiaries	"Science Center of Vegetable Crops" CJSC	2023	32	The work has been completed

Construction/repair of irrigation water lines in Aghavnavank and Haghartsin of Dilijan municipality, Urtsadzor and Dashtakar administrative units of Vedi municipality, construction of water treatment points in Urtsadzor and Haghartsin administrative units and repair of field roads in Dashtakar administrative unit	The competition was announced in the spring of 2023	2023	Residents of communities	The works will start in the spring of 2023 . The main works in the final phase of the Project have been completed. Pigeon and Haghartsi construction of irrigation water lines in the administrative units was still ongoing during the preparation of the final evaluation report of the Project. Since according to the project, the irrigation water lines pass through the territory of the "Dilijan" National Park, therefore, according to RA legislation, it is necessary to carry out an environmental impact assessment examination, which is a long process.
Organizing an environmental campaign	"Ruslan Beglaryan" JSC	2023	64	The work has been completed
"Development of a complete grant program package for submission to the Adaptation Fund".	"Alpha Partners"	2023	Residents of communities	The work has been completed. 8 priority concepts have been developed, which are aimed

				at improving the socio-economic conditions of the population, increasing the opportunities for earning additional income, increasing the adaptability of agricultural and natural ecosystems by increasing knowledge, awareness and management skills. Based on the ideology of the grant program "Strengthening the adaptive capacity of ecosystems and communities adjacent to special protected natural areas of the Republic of Armenia" financed by the Adaptation Fund, a complete package of the new grant program was developed and presented to the Adaptation Fund .
" Study of whitefish stocks in Lake Sevan".	Institute of Hydrology of the Czech Republic	2023	Residents of communities adjacent to Lake Sevan	The first phase of works has been completed
That's all			6727	

Evaluation results

Analyzing and summarizing the above-mentioned findings, an evaluation table of the Project components was made according to the main directions :

Program components	The main expected result	Expected side effects	Evaluation result			
			Qatari	Effectiveness	Stability	Participation/ awareness
Component 1: Implementing community-based smart farming practices in degraded areas and buffer zones	**Result 1:** Community-based smart agricultural practices are implemented in degraded areas, reducing the vulnerability of production systems and protected areas to climate risks.	**Sub- result 1.1.** Irrigation water supply systems have been restored, water use efficiency has increased				
		Sub- result 1.2. Water-saving drip irrigation systems are installed in selected community gardens				

		Sub- result 1.3. Existing cross-country roads leading to remote pastures and degraded land have been rehabilitated				
		Sub- result 1.4. They are made of perennial plants arable land - pasture degradation has decreased				
		Sub- result 1.5. Community pastures and grasslands have been restored and adaptation has increased				
		Sub- result 1.6 Water desalination points are constructed				
		Sub- result 1.7 Degraded sloping slopes have been restored, where new perennial, drought-tolerant species have been planted				

Component 2: Strengthening value chains and making climate-resilient smart technologies accessible to vulnerable rural communities Strengthen and implement climate-resilient smart technologies and value chains in vulnerable rural communities	**Result 2:** Agricultural production value chains are strengthened and climate-smart technologies are accessible to vulnerable rural communities, including women and men equally.	**Sub- result 2.1.** Implementation of "climate-resistant smart agricultural" technologies				
		Sub- result 2.2. Greenhouses with unheated light constructions are built in the areas of the target communities				
		Sub- result 2.3. Solar dryers are installed in the areas of the target communities				
		Sub- result 2.4. Community management and business plans are being developed for the climate smart agricultural value chain				

B salt 3. Raising awareness, capacity building, monitoring and decision-making on climate-resilient smart agricultural practices	**Result 3:** In the target communities, the level of awareness, planning, monitoring and decision-making regarding climate-resilient smart agricultural production methods and HRM has increased.	**Sub- result 3.1.** Through farm field schools and agrogitadiaspora services, climate-smart agriculture and CDM best practices have been disseminated to target communities.				
		Sub- result 3.2. Best practice examples and training materials on climate smart agriculture are compiled, shared and accessible				
		Sub- result 3.3. Community-based adaptation planning has been implemented for target communities				

		Sub- result 3.4. Strategies to ensure climate-resilient and gender-balanced agriculture and CDF have been developed in the target communities.				
		Sub- result 3.5. Land adaptation measures have been established for the target communities neutral soil degradation monitoring system				

Document analysis, stakeholders, and site visit

From the observed documents, as well as from the study of executive acts, it becomes clear that part of the Project works started during 2019, 2020 and 2021, and the main works were carried out during 2022, and some works, the delay of which was due to weather and other objective reasons , were completed in 2023.

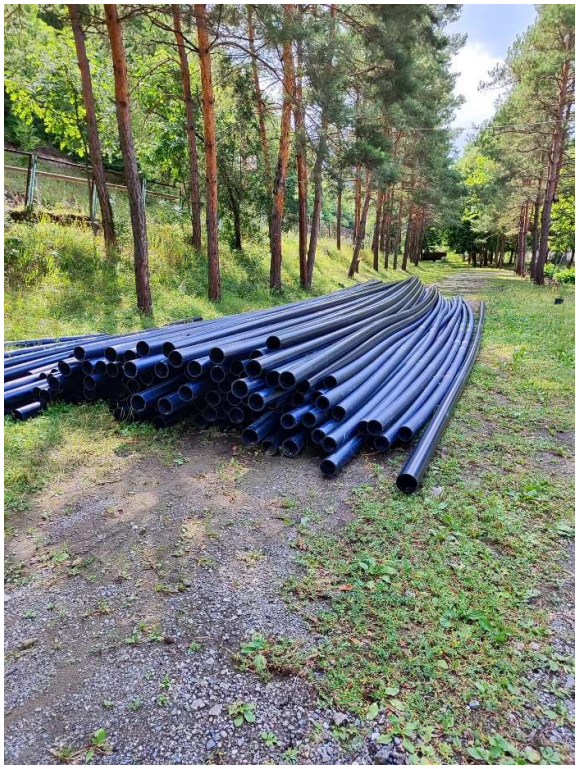
The PSIG PH has agreed with the Adaptation Fund on the directions for using the saved funds. It is planned to direct the funds to the construction of irrigation water lines and pits, the repair of roads in the middle of the fields, the construction of unheated greenhouses and dryers. Some of the works started in the fall of 2022 and will be completed in 2023.

Component 1: Implementation of community-based smart agricultural practices in degraded areas and buffer zones .

- Reducing water loss in irrigation systems and building new water lines

The project initially planned the construction of 6100 m of irrigation water lines. As of the end of the evaluation period, 13,206 linear meters of irrigation water lines were built for the purpose of establishing orchards and irrigating other land areas in the communities of Dilijan (Gosh, Khachrat, Aghavnavank and Haghartsin administrative units) and Vedi (Urtsadzor, Shaghap, Dashtakar administrative units). In particular, 3385 m of irrigation water lines were built in the Urtsadzor administrative area, 3700 m in the Shaghap administrative area, 400 m in the Dashtakar administrative area, 1377 m in the Gosh administrative area, 1377 m in the Khachrat administrative area, 1605 m in the Aghavnavank administrative area and 531 m in the Haghartsin administrative area. the works.

Construction of irrigation water lines in Aghavnavank and Haghartsi administrative units was still ongoing during the preparation of the final evaluation report of the Project. The long process of execution of the works is due to the fact that according to the project, the irrigation water lines pass through the territory of the "Dilijan" National Park, therefore, according to RA legislation, it is necessary to carry out an Environmental Impact Assessment examination, which is a long process.



Pipes for irrigation network construction

From the surveys with the interested persons, it is found that although some of the representatives of the beneficiary communities were not informed about the details of the works planned in the 3 components of the project, but most of them were informed about the construction of irrigation water lines. Direct beneficiaries mostly followed the progress of the works . It was noted by the stakeholders that the construction of the irrigation network is very vital for the community, it is noted that as a result of the works, the water loss has decreased by about 30 percent. At the same time, the new water lines built in the administrative areas of Urtsadzor, Dashtakar, Aghavnavank and Haghartsi have given dozens of households the opportunity to irrigate both the plots near their homes and other agricultural plots. Residents of Shaghap state that there have been complications related to the diameter of the pipes to make individual connections to the improved irrigation system. Almost all the beneficiaries state that it would be desirable to carry out the works in a larger volume.

- Establishing gardens with drip irrigation systems

In the course of 2022, the design-budget documents for the establishment of a 5.2ha orchard with drip irrigation (water jet supply) and an anti-hail net in the community of Vedi (Urtsadzor, Shaghap) were prepared.

In order to implement the presented works, a tender for the selection of the implementing organization was announced in 2023 and the works were completed during the evaluation of the project.

From the comparison of the documents, it becomes clear that the construction of the drip irrigation system of 1 ha planned for the first year was not carried out in the planned period (the installation of the 5.2 ha drip irrigation system remained unchanged until the end of the project).

The assessment of efficiency, sustainability and impact can be fully carried out in the following years, as the planned works are completed in the autumn of 2023.

- Construction of solar photovoltaic plants

During 2021, 14 and 24 kW photovoltaic plants were built in the Shaghap community to operate 2 water pumps, which significantly reduces the cost of electricity. The direct beneficiaries of this event are 135 and the indirect beneficiaries are around 370.

- Establishment of orchards

During 2021, 3,775 ha of thornless moshen, raspberry and currant saplings were planted in the communities shown below.

Job Title:	Residences	Volume	Number of direct beneficiaries	Number of indirect beneficiaries
of berry (thornless moshen, raspberry, currant) seedlings	Urtsadzor	1 ha	9:00	27
	Pigeon	1,485 ha	56	16
	To the groom	0.59 ha	15	33
	Cross statue	0.2 ha	2	3
	Meadow	0.5 ha	100	245

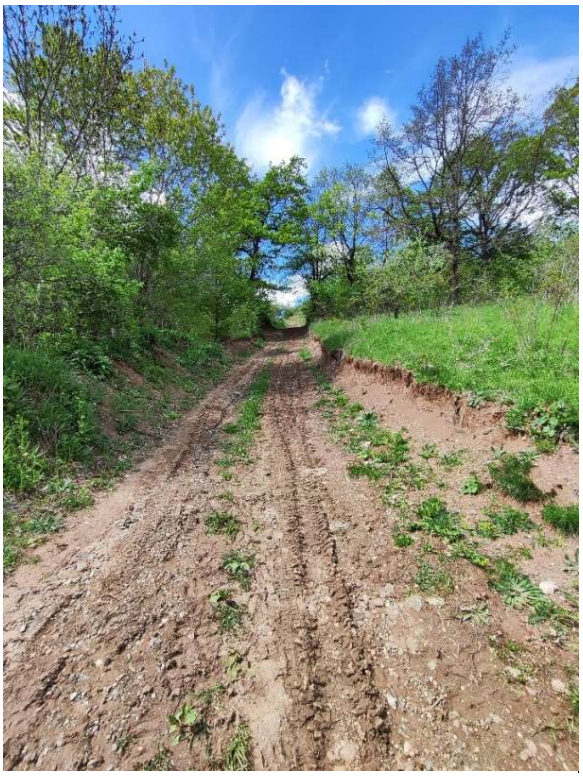
- Rehabilitation of degraded/rehabilitated field roads, installation of culverts on field roads, construction of cattle sheds

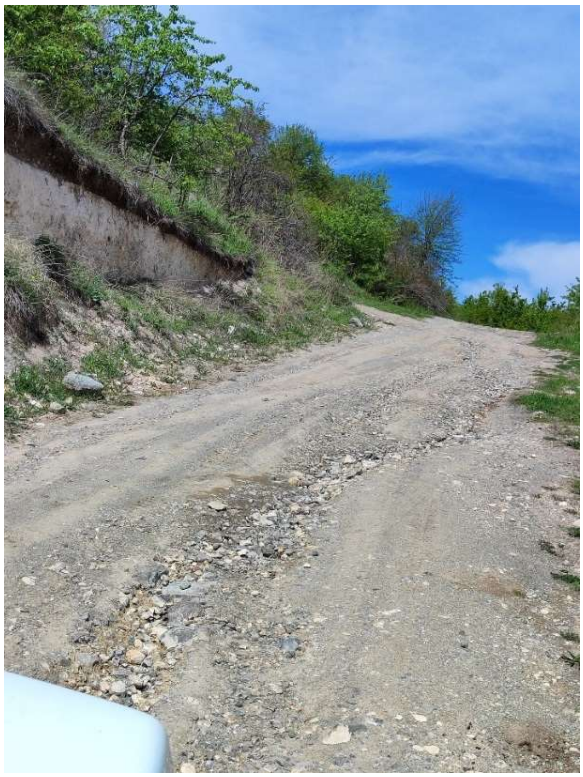
The project initially planned to restore 39.5 km of field roads, install 50 culverts and build 15 culverts.

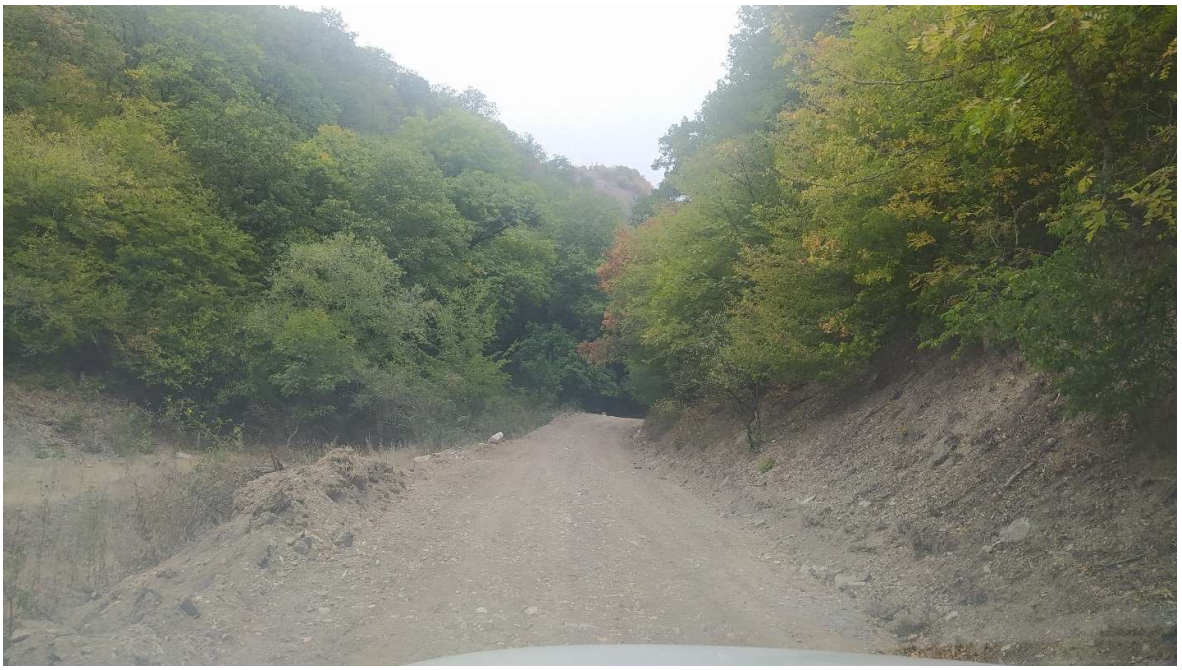
According to the performance plan, 38.61 km of field roads were repaired and 11 irrigation points were built in pastures in Vedi extended community, Dilijan extended community and Pambak extended community. A total of 45 culverts are installed.

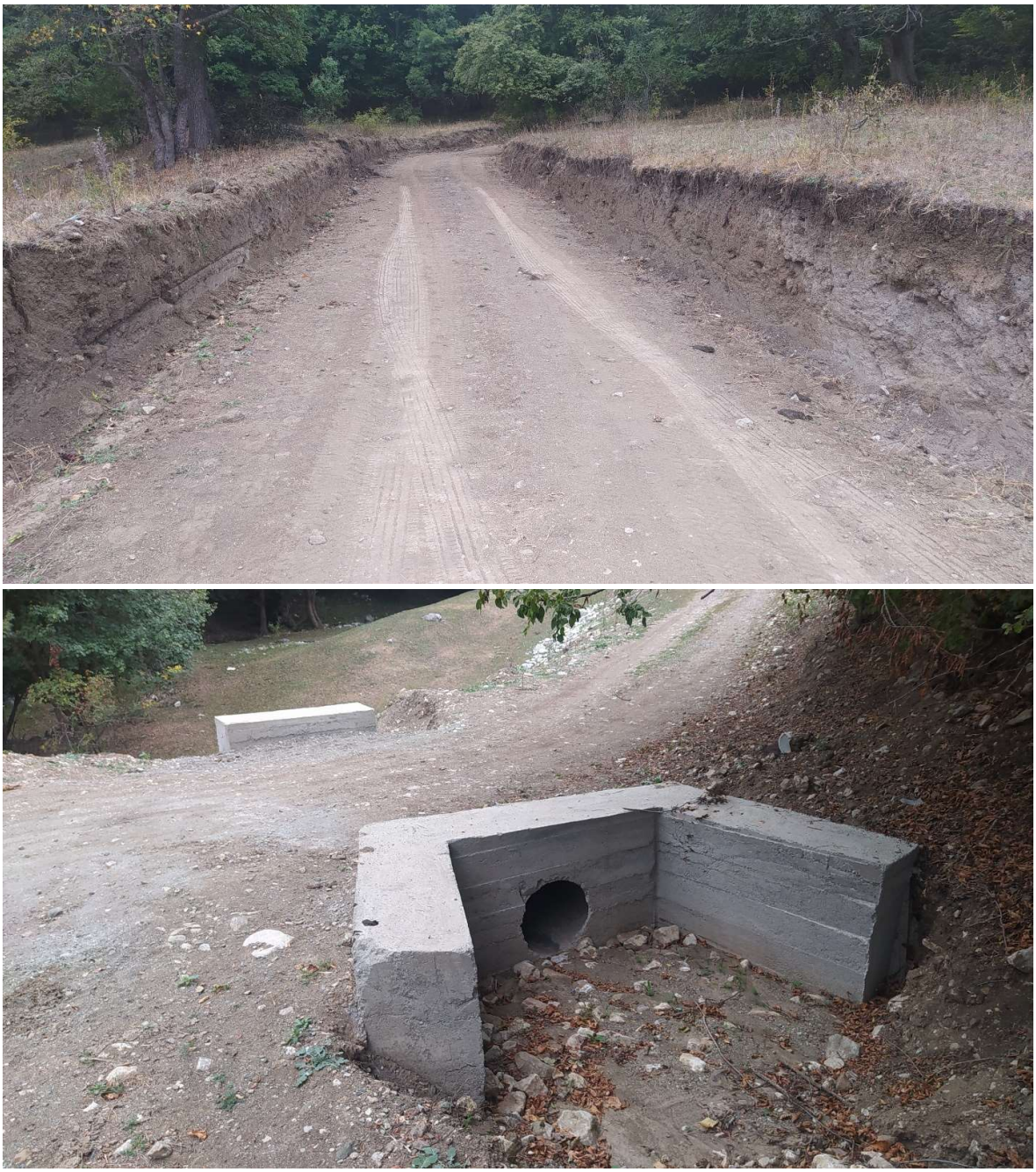
Construction of water treatment points in Urtsadzor and Haghartsi administrative units and repair of field roads in Dashtakar administrative unit started and completed in the spring of 2023 .

Job Title:	Residences	Volume	Number of direct beneficiaries	Number of indirect beneficiaries
"Repair of inter-field roads and construction of watering points in pastures"	Meadow	5215m field road, 1 watering point	532	668
	Fioletovo	1811m field road: 1 watering point	113	168
	Dilijan city	593m field distance way	169	169
	Gosh	5959 meters of field road, 1 watering point	252	304
	Cross statue	3146 linear meters in the middle of the field	168	245
	Pigeon	2718 linear meters of field road, 2 watering points	166	228
	To the groom	7051 square meter field road, 1 watering point	564	657
	Teghut	2066 linear meter field road, 2 watering points	264	358
	Shalap	5860 linear meters of field road, 1 watering point	301	398
	Urtsadzor	1361 linear meters of field road, 1 watering point	24:	354
	Llanjanist	1361 linear meters of field road, 1 watering point	42	56
	Field stone	1471 linear meters in the middle of the field	271	334









Repaired field roads

Surveys with interested parties reveal that most of the representatives of the beneficiary communities were not informed about the details of the works planned in the 3 components of the project during the mid-term evaluation report, some of them were not informed about the completed works, but the situation regarding the awareness of the beneficiaries was significantly changed during the Final Evaluation. Stakeholders noted that rehabilitation of field roads is important, but roads restored after snowmelt and spring rains have undergone some changes and require annual maintenance for further efficiency. After the 2nd repair of the field roads in Aghavnavank and Teghut, they are currently in satisfactory condition. The residents of Shaghap state that the improvement of

the roads in the middle of the field has created obstacles for them, particularly for the traffic of trucks. If in the past it was used for trucks, now they can't use it. At the same time, the residents of Shaghap state that the watering points are used one-way, during the construction it was not planned so that there would be an opportunity for the animals to use both sides without harming each other.

- *Perennial planting areas have been established, pasture degradation has decreased*

725.0 ha of pastures and 11.0 ha of grasslands in **Aghavnavank, Haghartsin, Teghut administrative units** of Dilijan enlarged community were improved .

The works in the mentioned administrative units have been completely completed.

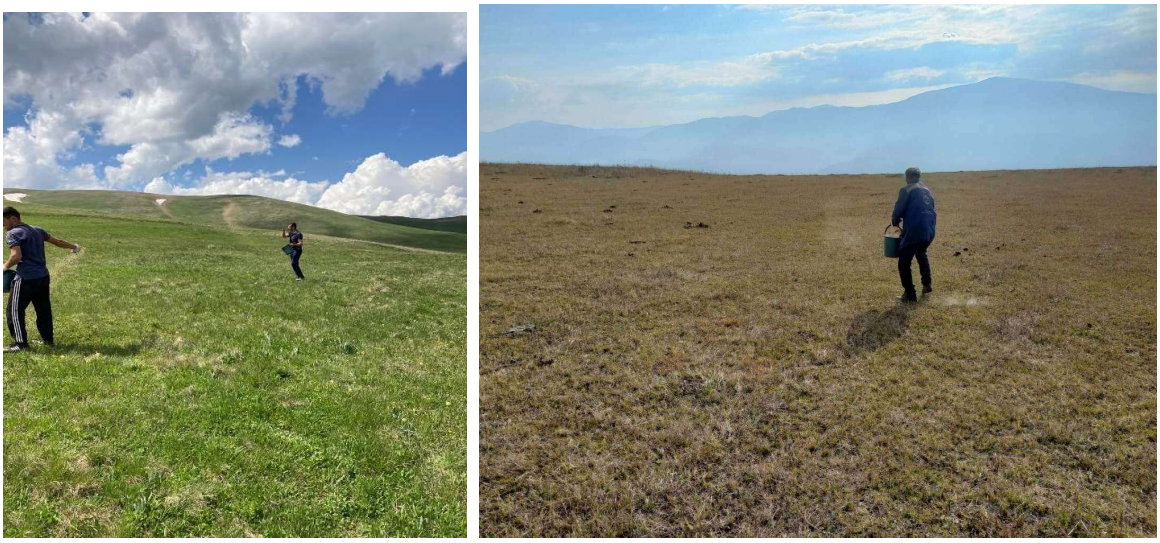
Restoration of pastures and grasslands by loosening and subsowing

Spring fertilization of pastures.

In the spring of 2022, 36.25 tons of nitrogen fertilizers and 4,901 tons of seeds were purchased for the purpose of fertilizing community pastures.

Spring fertilization of lawns.

In the spring of 2022, 1.1 tons of nitrogen fertilizers and 0.071 tons of seeds were purchased for lawn fertilization.



Restoration of pastures and grasslands by clearing

Basic fertilization of pastures

In the fall of 2022, 19.8 tons of phosphorous, 21.75 tons of potassium and 239.25 tons of organic fertilizers were purchased for the purpose of fertilizing community pastures.

Basic fertilization of lawns.

In the fall of 2022, 0.429 tons of phosphoric, 0.396 tons of potassium and 3.63 tons of organic fertilizers were purchased for the purpose of fertilizing lawns .

136 ha of pastures, 85 ha of grasslands and 26 ha of arable land in **Margahovit administrative unit** of Pambak enlarged community are among the improved areas .

Spring fertilization of pastures.

In the spring of 2022, 6.8 tons of nitrogen fertilizers and 0.92 tons of ryegrass, nettle, sedge and korghan seeds were purchased.

Spring fertilization of lawns.

In the spring of 2022, 8.5 tons of nitrogen fertilizers and 0.55 tons of ryegrass, nettle, sedge and korghan seeds were purchased.

Nourishment of arable land.

In the spring of 2022, 2.6 tons of nitrogen fertilizers were purchased.

Fertilization of degraded arable land with biohumus.

In the spring of 2022, 5.0 tons of biohumus was obtained.

Basic fertilization of pastures

In the fall of 2022, 3.71 tons of phosphoric, 4.08 tons of potassium, and 44.88 tons of organic fertilizers were purchased.

Basic fertilization of lawns.

In the fall of 2022, 3.32 tons of phosphoric, 3.06 tons of potassium, 28.05 tons of organic fertilizers were purchased.

Basic fertilization of arable lands.

In the fall of 2022, 0.91 tons of phosphorous, 0.78 tons of potassium and 12.8 tons of organic fertilizers were purchased for the main fertilization of arable land.

- *Rehabilitated and improved soils*

Improvement of pastures, grasslands and arable lands was realized by fertilizing with organic and mineral fertilizers. Thus, for the assessment period, 251 ha of pastures, 71 ha of grasslands and 77 ha of arable land were improved in the Urtsadzor, Shaghap and Lanjanist administrative units of the extended Ved community.

Basic fertilization of arable lands.

1. In Urtsadzor administrative unit, 33,000 kg of phosphoric (442 kg of active substance (P_2O_5)), 33,000 kg of organic fertilizers and 18,000 kg of zeolite were purchased, transported to the area and distributed to the beneficiaries.
2. In Shaghap administrative unit, 22,275 kg of phosphoric (298.4 kg of active substance (P_2O_5)), 22,275 kg of organic fertilizers and 12,150 kg of zeolite were purchased, transported to the area and provided to the beneficiaries.
3. In Langjanist administrative unit, phosphorous (110.5 kg of active substance (P_2O_5)), 8250 kg of organic fertilizers and 4500 kg of zeolite were purchased, transported to the area and distributed to the beneficiaries.

Basic fertilization of pastures.

1. In the Urtsadzor administrative unit, 39,600 kg of phosphoric (556.9 kg of active substance (P_2O_5)), potassic (2088 kg of active substance (K_2O)), organic fertilizers were purchased and fertilization was carried out.
2. In Shaghap administrative unit, 33,300 kg of phosphoric (468.7 kg of active substance (P2O5)), potassic (1757.4 kg of active substance (K_2O)), organic fertilizers were purchased and fertilization was carried out.
3. In the Lanjanist administrative unit, 9900 kg of phosphoric (139.2 kg of active substance (P_2O_5)), potassic (522.0 kg of active substance (K_2O)), organic fertilizers were purchased and fertilization was carried out.

Basic fertilization of lawns.

1. In the Urtsadzor administrative unit, 2310 kg of phosphoric (46.4 kg of active substance (P_2O_5)), potassic (146.2 kg of active substance (K_2O)), organic fertilizers were purchased, transported to the area and provided beneficiaries.
2. In Shaghap administrative unit, 16,500 kg of phosphoric (331.5 kg of active substance (P_2O_5)), potassic (1044.0 kg of active substance (K_2O)), organic fertilizers were purchased, transported to the area and provided beneficiaries.
3. In Lanjanist administrative unit, 4,620 kg of phosphoric (92.8 kg of active substance (P_2O_5)), potassic (292.3 kg of active substance (K_2O)), organic fertilizers were purchased, transported to the area and provided beneficiaries.

In the mentioned administrative units, the main fertilization works scheduled for the fall of 2022 have been completely completed. Part of the work continued and was completed in the spring of 2023.

Spring fertilizing of pastures by fallowing

In Urtsadzor administrative unit, nitrogenous (2064.0 kg per active substance (N)), phosphoric (371.3 kg per active substance (P_2O_5)), potassic (1392.0 kg per active substance (K_2O)), organic* 26400 kg purchase of fertilizers, 811.2 kg of herb seeds and implementation of sub-sowing fertilization.

In Shaghap administrative unit, nitrogenous (1737.2 kg per active substance (N)), phosphoric (312.5 kg per active substance (P_2O_5)), potassium (1171.6 kg per active substance (K_2O)), organic* 22220 kg purchase of fertilizers, 682.8 kg of herb seeds and implementation of sub-sowing fertilization.

In Langjanist administrative unit, nitrogenous (516.0 kg per active substance (N)), phosphoric (92.8 kg per active substance (P_2O_5)), potassium (348.0 kg per active substance (K_2O)), organic* 6600 kg purchase of fertilizers, 202.8 kg of herb seeds and implementation of sub-sowing fertilization.

Spring fertilization of lawns with subsowing

In Urtsadzor administrative unit, nitrogenous (240.8 kg per active substance (N)), phosphoric (31.0 kg per active substance (P_2O_5)), potassium (97.4 kg per active substance (K_2O)), organic* 1540 kg purchase of fertilizers, 44.7 kg of herb seeds, distribution to the beneficiaries and supervision for the purposeful implementation of the works.

In Shaghap administrative unit, nitrogenous (1720.0 kg of active substance (N)), phosphoric (221.0 kg of active substance (P2O5)), potassium (696.0 kg of active substance (K_2O)), organic* 16500 kg of fertilizers, 319 Purchase of 5 kg of herb seeds, distribution to the beneficiaries and supervision for the purposeful implementation of the works.

In Langjanist administrative unit, nitrogenous (481.6 kg per active substance (N)), phosphoric (61.8 kg per active substance (P_2O_5)), potassium (194.9 kg per active substance (K_2O)), organic* 3080 kg purchase of 89.5 kg of fertilizers, seeds of herbs, distribution to beneficiaries and supervision for targeted implementation of works.

Farmland nutrition

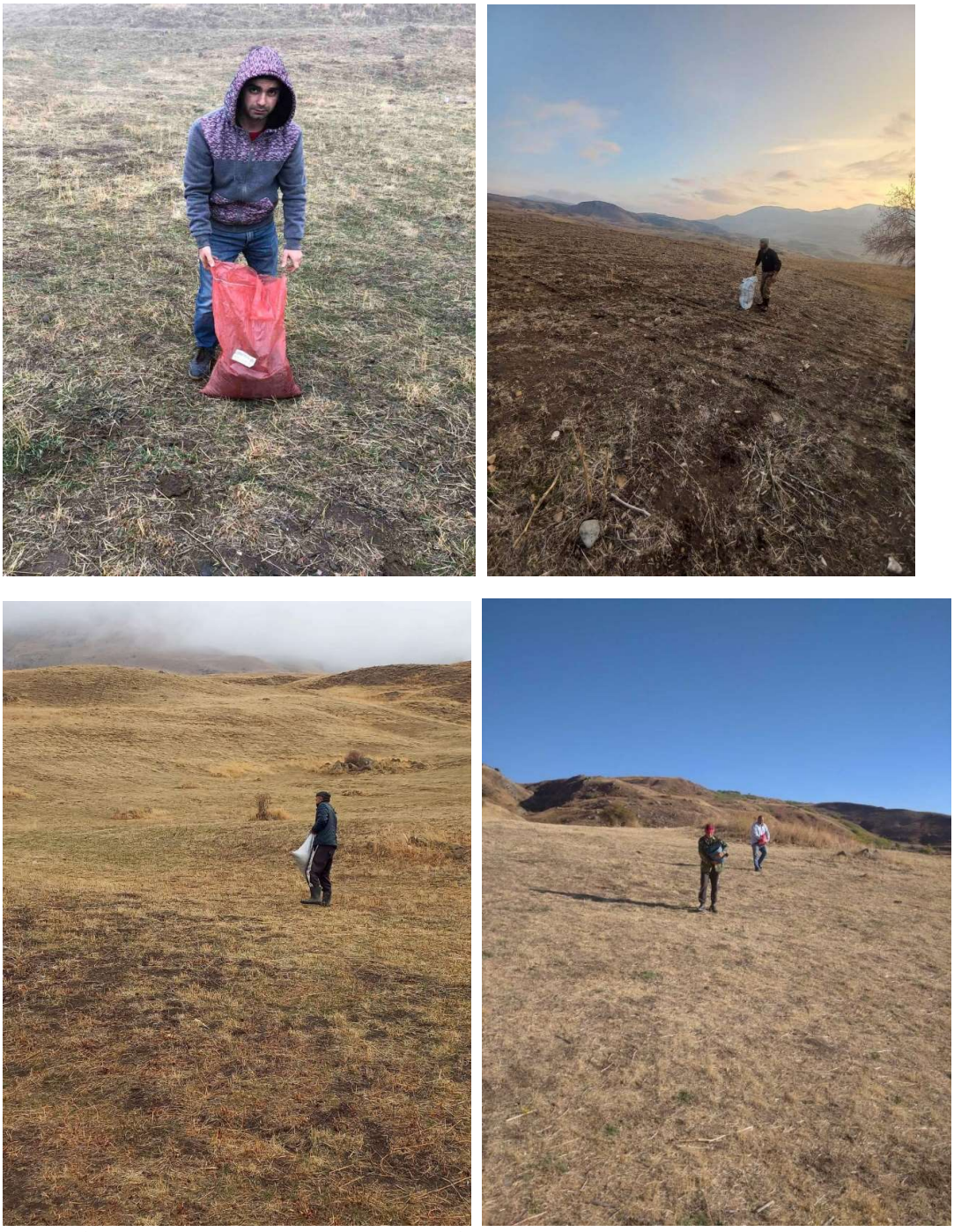
Purchase of 1376.0 kg of nitrogenous fertilizers per active substance (N) to Urtsadzor administrative unit and implementation of nutrition works in fertilized arable lands in the fall.

Purchase and transfer of 928.8 kg of nitrogenous fertilizers in terms of active substance (N) to Shaghap administrative unit and implementation of nutrition works in fertilized arable lands in the fall.

Purchase of 344.0 kg of nitrogenous fertilizers per active substance (N) to Lanjanist administrative unit and implementation of nutrition works in fertilized arable lands in autumn.

Improved areas by administrative area

Administrative areas of Vedi community	And done land, ha	A pastures, ha	feet, ha
Urtsadzor	40.0	120.0	7.0
Shalap	27.0	101.0	50.0
Llanjanist	10.0	30.0	14.0:
That's all	77.0	251.0	71.0



Restoration of pastures and grasslands by clearing

This subsection , it should be taken into account that the pastures and grasslands are 5-10 km away from the communities, and the roads are of poor quality. At the same time, it should be noted that fertilizer prices change rapidly.

The implementation activities of this sub-section mainly also included:

1. Cooperation with municipal governments (implementation of consultations and discussions);

2. Delineation of degraded grassland areas and creation of schematic maps based on cadastral maps;

3. Clarification of the list of beneficiaries with the participation of the municipality;

4. Compilation of the work schedule and coordination with the community leaders and the PSIG PA;

5. Purchase of necessary fertilizers, transport to fertilized areas, distribution to beneficiaries;

6. The executor provides the fertilizers to the beneficiaries and supervises their intended use.

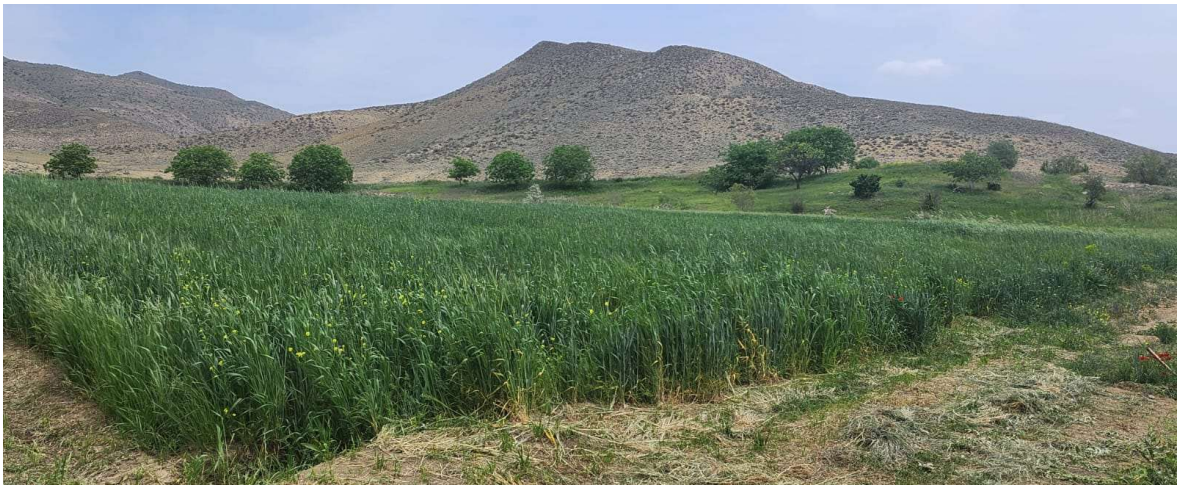
The conditions for the implementation of this subsection are:

1. The beneficiaries carried out the composting works with their own funds;
2. Organic fertilizer must meet the following quality indicators:
   - Dry organic mass: 38-45%
   - Total nitrogen (N): 2.0-2.5%
   - Total phosphorus (P): 0.50-0.52%
   - Potassium (K): 1.2-1.7%
   - Calcium (Ca): 7.9-8.2%
   - Magnesium (Mg): 0.50-0.53%
   - Sulfate (SO_4): 3.1-3.3%
   - PH 7.5-7.7

3. Biohumus must meet the following quality indicators:
   Dry organic matter: 50-56%
   - Humidity: 40%-50%
   - Hummus: 10-12%
   - Total nitrogen (N): 2.1-2.5%
   - Total phosphorus (P): 1.3-2.0%
   - Potassium (K): 0.91-1.72%
   - Calcium (Ca): 6.9-8.4%
   - Magnesium (Mg): 0.60-0.75%
   - Sulfate (SO_4): 1.1-1.5%
   - pH: 6.6-7.3

Stakeholder surveys revealed that representatives of the beneficiary communities were not well informed about the program components, but were aware of grassland and arable land improvements as well as targeted outcomes. If in the fall of 2022 some of the beneficiaries had difficulty expressing their opinion about the end result of the works, then after 20-25 days after the end of the spring works, most of them evaluate the results positively. However, the main problem is that the fertilizers provided by the program did

not make up the full volume to meet the needs of the beneficiaries and only degraded areas were fertilized. They want fertilizers to be provided for the improvement of the surrounding areas, because they are in a difficult social situation and it is difficult to obtain fertilizers with their own funds.



Fertilized lawn

- **Rehabilitation of degraded slopes through establishment of agro-grove**

In the course of 2022, the design estimate documents for the establishment of an agropark and the construction of an irrigation network of 3 hectares of degraded slopes in the Urtsadzor administrative unit were prepared.

In order to implement the presented works, a tender for the selection of the implementing organization was announced and the planned works were carried out in 2023.

From the comparison of the documents, it becomes clear that the establishment of the 1 ha agro-park planned for the first year was not implemented in the planned period (the establishment of the 3 ha agro-park remains unchanged until the end of the project).

Efficacy, sustainability and impact can only be assessed as the trees grow.

It is expected that in 2-3 years (along with the growth of trees) the role of the forest protection zone will increase .

- **Establishment of orchards**

Orchards were established by providing saplings to the beneficiaries.

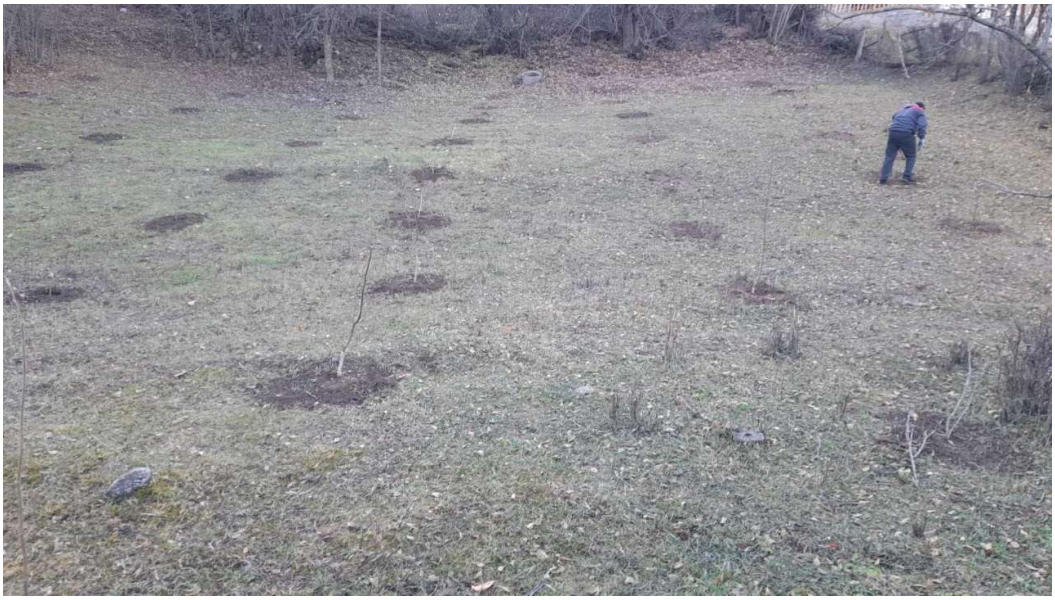
13.3 hectares of orchards were established in the Gosh, Khachratsin, Haghartsin, Teghut administrative units of the enlarged Dilijan community and in the city of Dilijan.

1. 1447 saplings of medium-sized (semi-dwarf) apple trees,
2. With medium growth (1130 saplings of semi-dwarf pear,
3. 6530 saplings of medium-sized (semi-dwarf) walnut,
4. 1250 large-fruited oak saplings.

300 pear and apple tree saplings were provided to the beneficiaries of Fioletovo community.

Additionally, 405 walnut trees were provided to the beneficiaries of the Hovk administrative unit, and 250 apple and pear seedlings were provided to the beneficiaries of the Dashtakar administrative unit.

In total, around 14.7 hectares of apple, pear, walnut and fir orchards were established.



Established orchard

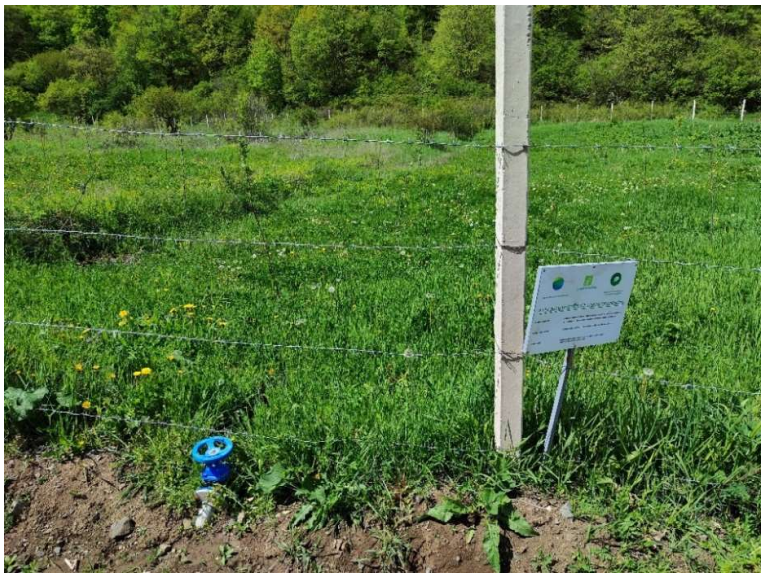
The conditions for establishing orchards are:

- For a medium-sized (semi-dwarf) apple tree sapling, the saplings should be 2-3 years old. The above-ground part of the plant should be 0.8-1.2 meters high, 1.1-1.3 cm diameter of the trunk, healthy unopened buds. The root system should have a central root about 15-20 cm long and no less than 2-3 lateral branches covered with dense rhizomes. Seedlings must be free from diseases and pests;
- Medium-sized (semi-dwarf pear seedling: Seedlings should be 2-3 years old. The above-ground part of the seedling should be 0.8-1.2 meters high, 1.1-1.3 cm diameter of the trunk, healthy unopened buds. The root system should should have a central root about 15-20 cm long and at least 2-3 lateral branches covered with dense rhizomes. Seedlings should be free from diseases and pests;
- Medium-growing (semi-dwarf) walnut saplings: Saplings must be 2 years old. The above-ground part of the plant should be 0.6-0.8 meters high, 1.0-1.2 cm diameter of the trunk, healthy unopened buds. The root system should have a central root about 15-20 cm long and no less than 2-3 lateral branches covered with dense rhizomes. Seedlings must be free from diseases and pests;
- For large-fruited cypress saplings: Seedlings must be 2 years old. The aboveground part of the plant should be 0.5 - 0.7 meters high, 1.0 - 1.2 cm diameter of the trunk, healthy unopened buds. The root system should have a central root about 15-20 cm long

and 3-4 lateral branches covered with dense rhizomes. Seedlings should be free from diseases and pests.

Irrigation of established gardens is mostly carried out by non-drip irrigation method, there are gardens where there is still no irrigation system.

During 2022, 1,600 linear meters of fence was built to protect orchards (to protect animals from entry) at the request of the beneficiaries of Gosh administrative unit of Dilijan community. The fence was built with part of the savings generated by tender procedures for planting gardens.



Established orchard fenced

Stakeholder surveys revealed that representatives of the beneficiary communities were not aware of the program components, but were aware of the targeted outcomes. During the interviews during the final evaluation, the residents mentioned that the provision of saplings was sometimes carried out with deviations from the desired period for planting and the saplings did not fully stick, after which the dried saplings were replaced again, but there are still saplings that did not stick. Therefore, it is very necessary to make sure how many percent of the saplings have stuck and how much yield will be provided. At the same time, the beneficiaries note that it will take a long time - 3-5 years /until the harvest/ to be able to talk about the results of these measures implemented by the program.

Component 2: Introduce and strengthen climate-resilient smart technologies and value chains in vulnerable rural communities

- ***Planting and mulching of bushes***

Planting and mulching of 3.6 hectares of bushes is planned for the project and will be completed in the fall of 2021.

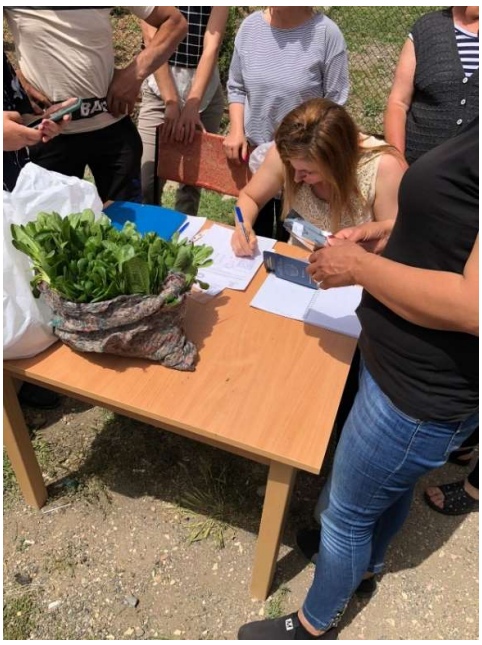
- ***Introduction of new varieties and hybrids***

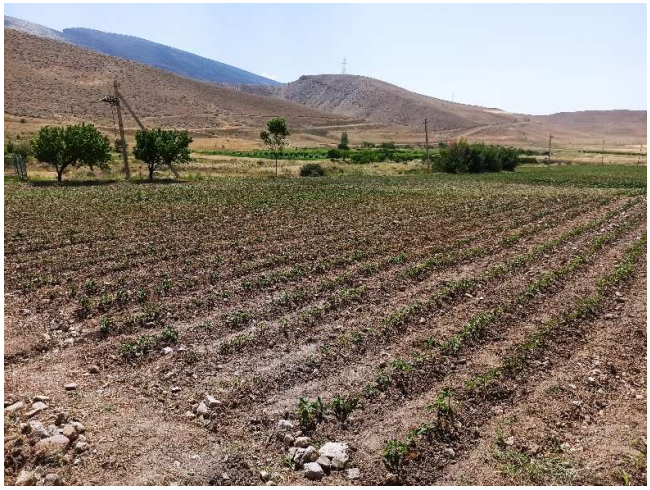
New varieties and hybrids of vegetables and leafy vegetables were introduced in Urtsadzor, Shaghap administrative units of Vedi enlarged community and Fioletovo community, as well as professional advice was provided to the beneficiaries within the 3rd component of the Project.

In 2022, 77,000 seedlings of different varieties and hybrids of tomatoes, eggplant, lettuce, broccoli and 2.44 kg of seeds of different varieties of cucumbers were provided to the beneficiaries of the mentioned communities. During the distribution of seedlings and seeds, 52 beneficiaries were advised on the specifics of cultivating varieties and hybrids.

According to studies, about 3 hectares of land can be cultivated with the given seedlings and seeds.

The percentage of female beneficiaries using climate smart technologies is around 66.3. Women are 67.6 percent growing drought-tolerant and heat-tolerant vegetable varieties and hybrids, and 65.7 percent are planting shrubs and mulching.





Provision of new cultivars and hybrids, and cultivated plots of land

It should be noted that only one scientific center in the Republic is engaged in the study of new varieties and hybrids of vegetables, but the residents of the communities were convinced by their own experience how effective the new varieties and hybrids are. After

seeing the results, it is very likely that the rest of the community will also want to grow new varieties and hybrids of vegetables on their land.

This subsection in part interested persons with from conversations simple is it turns out that beneficiary communities representatives informed are targeted results regarding , following are of the event and express satisfaction for the support . However , the main thing the problem it is that _ with the program provided seeds and seedlings whole volume they are not make up beneficiaries of needs . Seedlings and seeds were provided according to the agrotechnical terms, some of the beneficiaries used some of the cucumber seeds for summer sowing in order to get the harvest in autumn. A survey of beneficiaries was conducted to assess yield and crop quality. According to the results of that survey, new varieties and hybrid seeds have had a positive effect on the yield of the land cultivated by the beneficiary farmers.

- ***Planting herbs***

Within the framework of the project, demonstration areas for the cultivation of medicinal plants were created in the communities of Urtsadzor, Dilijan and Margahovit, and the degraded habitats of medicinal plants were restored in the community of Urtsadzor.

The project plans to plant 0.5 ha of herbs and in 2022 in the Dilijan enlarged community (Dilijan city, Aghavnavank, Khachyatul, Gosh, Haghartsin, Teghut administrative units), Pambak enlarged community (Margahovit administrative unit) and Vedi enlarged community (Urtsadzor administrative unit) 0.5 ha, experimental areas for the cultivation of herbs were created , providing the beneficiaries with 27,000 seedlings of various herbs.

In the extended community of Vedi (Urtsadzor administrative unit), restoration of 1.8 ha of degraded medicinal plant habitat was carried out by sowing 2.1 kg of different medicinal plants and fertilizing with biohumus.

In Vedi extended community (Utsadzor administrative unit) and Pambak extended community (Margahovit administrative unit) efficiency demonstration of the latest organic fertilizers was also carried out. In particular, 4.0 ha of arable land were fertilized with biohumus at the rate of 5 tons of biohumus per 1ha.

In Lanjanist administrative unit of Vedi community, 10 ha of korngan planting area was established.

32 beneficiaries included in the program were provided with advice on the peculiarities of growing medicinal plants. The main knowledge raising activities were carried out within the framework of the 3rd component.

The evaluation of these results , it was found that most of the beneficiaries are informed about the measures implemented by this sub-component, and those who are informed express satisfaction with the effectiveness of this sub-component of the program.

- ***Construction of unheated greenhouses***

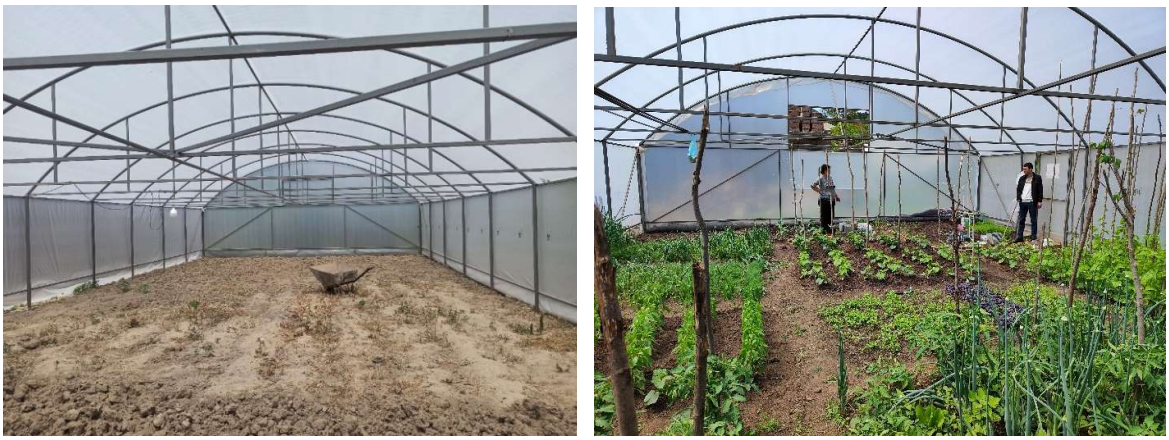
The project envisages the construction of unheated greenhouses with a total area of 3000 m2 and the number of beneficiaries working in greenhouses is 100, of which 70% are women .

In 2022, 50m^2 was built in the administrative units included in the plan of enlarged communities of Vedi, Dilijan, Pambak and in Fioletovo community. 100m^2 and 150m^2 unheated greenhouses with a total area of 3000 m^2. Agreed hereby component evaluation for provided beneficiaries list of greenhouses built below the list; Urtsadzor (8 units, 900m^2) , Shaghap (2 units, 300m^2) administrative units of Vedi enlarged community, Aghavnavank (1 unit, 100m^2) of Dilijan enlarged community , Khachratov (6 units, 600m^2), Gosh (2 units, 250m^2), in Haghartsi (1 unit, 100m^2), Teghut (3 units, 250m^2), Dilijan (2 units, 150m ^{2}) administrative units, Margahovit administrative unit of Pambak enlarged community (3 units, 150m ^{2}) and Fioletovo community (4 piece, 200m ^{2}) , and the total number of beneficiaries is 38.

At the final stage of the project, 6 unheated greenhouses were built in Dashtakar and Hovk administrative units.

From the comparison of documents, it becomes clear that the planned construction of unheated greenhouses with a total area of 1,000 m ^{2} and the number of beneficiaries dealing with greenhouses is 30 for the first year. Despite the underperformance of the previous years, in 2022 unheated greenhouses with a total area of 3000 m ^{2} were built , but the number of beneficiaries was 56 less than planned.

8,850 plants with a closed root system of tomatoes, cucumbers and greenhouses were provided to the beneficiaries of Urtsadzor, Shaghap, Dashtakar administrative units of Vedi community of Ararat region, Aghavnavank, Gosh, Khacharyat, Haghartsin, Teghut administrative units of Tavush region and Dilijan city, Margahovit administrative unit of Lori region and Fioletovo community. eggplant seedlings.



Built greenhouse

% of the beneficiaries of this measure are women, which is significantly different compared to the female beneficiaries of the program. This fact is mainly explained by the

fact that women occupy a small percentage in owning their own farms. Although cultivation and crop management are carried out jointly.

Surveys document that greenhouse beneficiaries were selected by lottery.

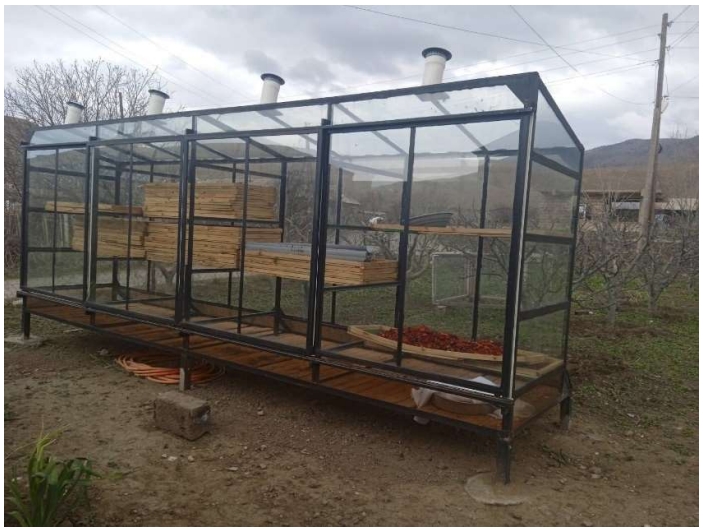
Surveys with interested persons reveal that the representatives of the beneficiary communities were partially informed about the components of the project and the targeted results. Partial awareness is also evidenced by the fact that during the conversations some of the beneficiaries mentioned that they still do not use the greenhouses to their full extent, some beneficiaries had expectations that support should also be provided in the matter of heating the greenhouses. According to the results of that survey, greenhouses have had a positive effect, and non-beneficiary villagers state that the increase of greenhouse beneficiaries is highly relevant . However, it should be noted that crops grown in greenhouses are mainly used for personal needs. About 30 % of the beneficiaries sell the grown crop. Since greenhouses do not have a cooling system, greenhouses become unusable in hot weather.

- ***Construction of solar dryers***

The project envisages the construction of solar dryers with a total area of 150 m^2 and the number of beneficiaries engaged in them is 100, of which 80 % of beneficiaries are women.

30 solar dryers with an area of 180 m^2 for drying fruit were built , in particular in Urtsadzor of the enlarged Ved community. (15 units, 90m^2), Shaghap (2 units, 12m^2), Lanjanist (1 unit, 6m^2) in the administrative units, Aghavnavank of the Dilijan enlarged community (3 units, 18m^2), Khachrat (1 unit, 6m^2), Gosh (1 unit, 6m^2), Haghartsin (2 units, 12m^2), Teghut (1 unit, 6m^2), Dilijan (3 units, 18m^2) administrative units, Margahovit (1 unit, 6m^2) administrative unit of Pambak enlarged community :

There are 3 shelves in each dryer, the useful surface of which is $18m^2$.



Built-up dryers and products from dryers, including over-the-counter

From the comparison of documents, it becomes clear that the construction of solar dryers with a total area of 100 m^2 planned for the first year and the number of beneficiaries of solar dryers is 66. Despite the performance of the previous years, the construction of solar dryers in 2022 was overrun by 30 m^2 , -but the total number of beneficiaries was 43, 35 % less than planned.

At the final stage of the project, 3 more dryers were built in Dashtakar and Hovk administrative units.

About 30 % of the female beneficiaries of this measure are, which is significantly different compared to the female beneficiaries provided by the program. This fact is mainly

explained by the fact that women occupy a small percentage in owning their own farms. Although cultivation and crop management are carried out jointly.

Surveys with interested persons reveal that the representatives of the beneficiary communities were partially informed about the components of the project and the targeted results. During the conversations, some of the beneficiaries mentioned that they have already sold the food from the dryers, but there are beneficiaries who have not yet used the dryers to their full extent. Dryers are also used for drying herbs. The beneficiary of Gosh village personally sells dry fruits and herbs in the area adjacent to Goshavank. At the same time, support is expected from the program in the implementation of dry goods.

- ***Development of community management and business plans***

The project envisages the development of 2 business plans for climate-resilient smart agricultural value chains. During 2020-2022, 4 management plans with business surplus were developed, that is, this sub-component was overachieved. Regarding this Outcome, it is also necessary to note that there is no direct comparative relationship between beneficiaries and the latter's impact, so it is not possible to have a measurable numerical picture of the effectiveness of this sub-component of the program.

Component 3: Raising awareness, monitoring and strengthening decision-making capacity for climate-resilient smart agricultural practices

- ***Establishment of field schools***

One field school was formed in Utsadzor administrative unit of Vedi enlarged community and Hovk administrative unit of Dilijan enlarged community. 15 courses were organized, 1 of them online. The total number of participants was 134.

- ***Increasing awareness and knowledge of the population***

In 2022, courses on the following topics were launched and are ongoing.

- Technology of cultivation of berry (strawberry, blackberry, raspberry, blueberry) crops,
- the cultivation of vegetables in the protected ground ,
- the technology of cultivation of high-value crops ,
- of intensive garden cultivation ,
- the cultivation technology of spices and vegetable crops,
- crop rotation
- types of fertilizers and their use,
- useful wild plants as food and medicine,
- organic pest and disease control products.

25 courses were organized, 5 of which were online. The total number of participants was 1434.

Public booklets and information leaflets on the dangers of burning garbage, beware of nitrates, how to handle garbage, compost (make organic compost for our garden), no plastic bags have been prepared and distributed to workshop participants and community residents.

In the communities included in the project, 12 courses were also organized for the beneficiaries of orchards and unheated greenhouses on the peculiarities of cultivation.

- ***Strategies to ensure climate-resilient and gender-balanced agriculture and CDF have been developed in the target communities.***

Strategies for climate-resilient and gender-balanced agriculture and CDM have been developed and provided to communities .

- ***Implementation of the monitoring system for indicators of neutral land degradation***

Works started and finished in 2023.

For the result "Introduction of the monitoring system of indicators of neutral soil degradation" was developed.

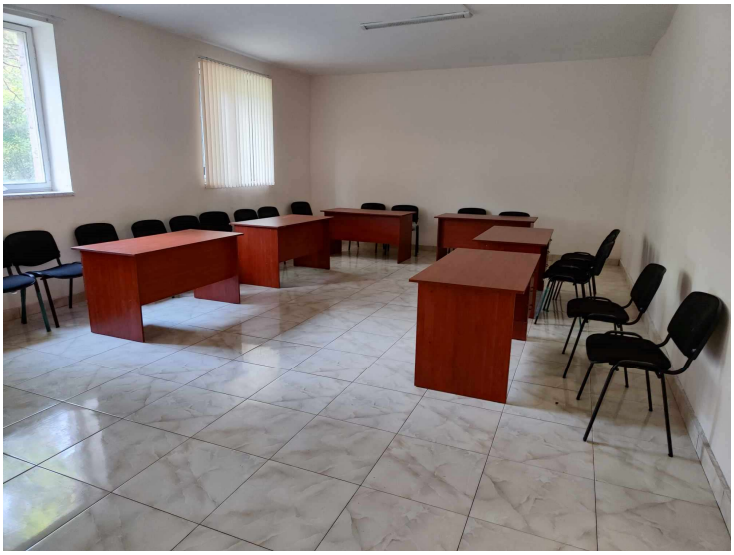
- Adaptation and Land Degradation Neutralization Monitoring Indicators,
- Beneficiary accounting tools,
- Monitoring visit report sheet,
- Implementation plan for trainings and courses to ensure involvement of stakeholders and beneficiaries.

It was clarified.

- monitoring and beneficiaries on which it is already possible to assess the impact of the project;
- List of participants of trainings and courses.

- ***Capacity building of municipalities, HCs and eco-clubs***

In all settlements included in the project, eco-clubs were formed, needs were assessed and agricultural office and computer products necessary for the activities were provided. A children's playground property was purchased and installed for the community of Fioletovo.



Office property provided

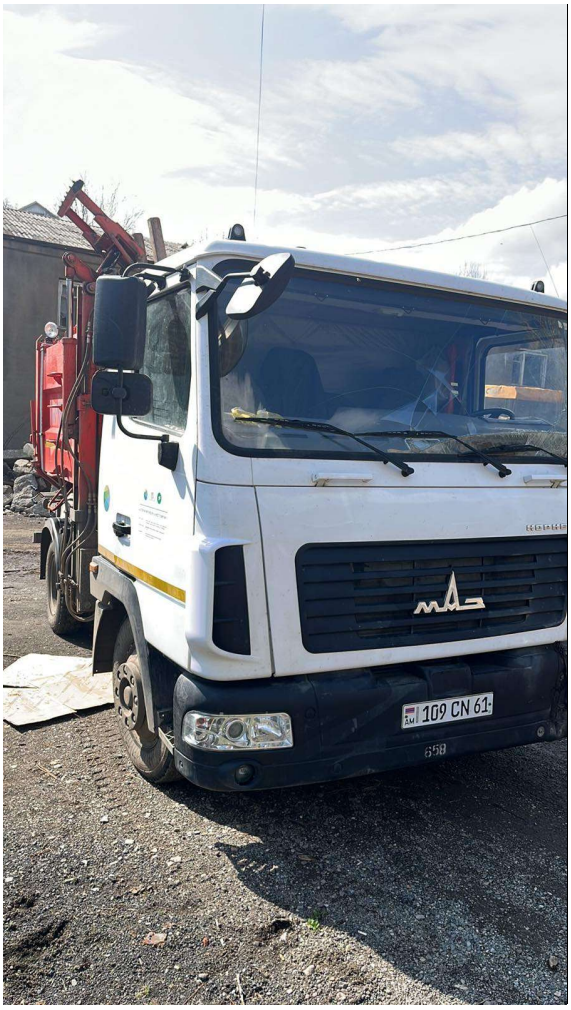
Savings and their use

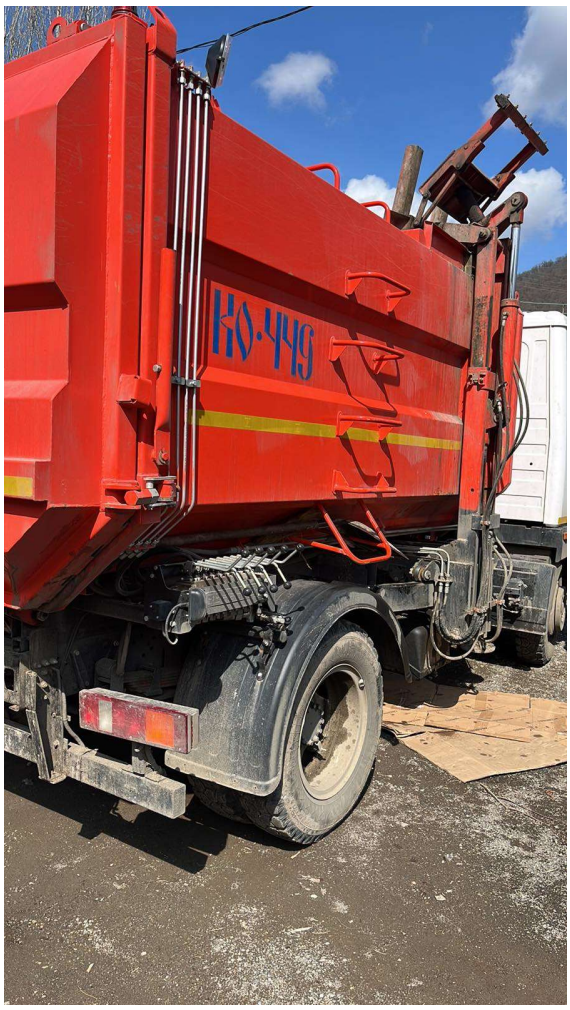
802,664,025 drams (1,672,216.4 US dollars) were earmarked for the implementation of the sub-results of the project, and as a result of tender procedures, savings of 118.9 million drams were generated compared to the values provided for in the procurement plan. The PSIG PH applied to the Adaptation Fund about possible options for using those funds and a mutual agreement was reached to include 2 more settlements in the Project: Dashtakar administrative unit of Vedi enlarged community and Hovk administrative unit of Dilijan enlarged community. Also, by mutual agreement, the needs of the communities included in the Project were additionally evaluated and the list of preferred measures was clarified.

As a result of visits, meetings and discussions to all administrative units included in the project, including Dashtakar of Vedi enlarged community and Hovk administrative units of Dilijan enlarged community, a joint decision was made.

- In Dashtakar administrative unit, repair 400 linear meters of irrigation water line, 1500 linear meters of field road, build 3 unheated greenhouses, 3 solar dryers for drying fruits and provide the residents with fruit tree saplings.
- In Hovk administrative unit, build 3 unheated greenhouses, 3 solar dryers for fruit drying and provide the residents with fruit tree seedlings.
- to build 1500 linear meters of irrigation water line in Aghavnavank administrative unit,
- To build 800 linear meters of irrigation water line and 1 water purification point in Haghartsin administrative unit.
- To build 1300 linear meters in Urtsadzor administrative unit irrigation water line and 1 water purification point ,
- To build 1 water purification point in Shaghap administrative unit,

- Provide 1 garbage truck to the city of Dilijan.





The city of Dilijan is provided with a garbage truck

Stakeholders' opinion

Enough remarkable is that telephone of inquiries results similar with logic are to sound also face to face discussions sounded opinions _ Residents about still available is Project: results incomplete opinion on . The situation has hardly changed between the interim and final assessments . This question sounds a bit abstract to the respondents and reflects not so much their actual level of awareness, but rather their perceptions of that awareness. The respondents here were divided into three equal parts: those who honestly admitted that they were not informed, those who indicated their general awareness and those who believed that they were informed.

This is objective, because the activities planned by the Program were mostly completed in 2023 and after that, and in terms of chronology, changes could not be felt yet. However, there is generally a noticeable desire for component continuity.

About 17% of the respondents partially know what the components of the Program are. There are beneficiaries who refuse to participate in surveys. Probably have informed to be problem Essentially, the increase in knowledge was considered as a related outcome.

The construction of unheated greenhouses and solar dryers are visible measures, so the fairly good awareness is not surprising or unexpected. Most are aware of the irrigation system repair works as the works were visible from the start period and quite a large number of beneficiaries are using the irrigation water lines.

Residents appreciate the rehabilitation of field roads and it was noted that rehabilitation of field roads is important, but roads restored after snowmelt and spring rains have undergone some changes and need annual maintenance for further efficiency. The residents of Shaghap state that the improvement of the roads in the middle of the field has created obstacles for them, particularly for the traffic of trucks. If in the past it was used for trucks, now they can't use it.

Beneficiaries note that during the construction of watering points, it was not planned in such a way that it would be possible for animals to use both sides without harming each other.

Residents argue that it will take several more years to achieve the results of the sub-component measures of improvement of degraded areas, restoration, establishment of orchards and forest gardens.

There is some misunderstanding regarding the selection of beneficiaries, but the majority of interviewed beneficiaries positively assess that the selection of beneficiaries was made by drawing lots. It is definitely a result of the implemented awareness and awareness raising activities.

In addition to the beneficiaries, conversations were held with the non-beneficiary residents of the community, who stated that they did not submit an application as a beneficiary of the Project, because they were not informed at the beginning and end of the Project, but currently they heard from fellow villagers about the work done.

Intermediate assessment stage be revealed is that asked interested public not from organizations and eco-clubs one complete informed was not From the program (available: is strictly superficial insight of the program and: of it components regarding). Although some eco-clubs mentioned that they had are involvement Project: in events, including awareness raising directed in events . In the final assessment phase, the picture has improved considerably. In order to increase the involvement of representatives of the NGO sector in similar programs, it is necessary to carry out mapping of public organizations, assessment of needs and, with the involvement of Yerevan and regional active organizations, to implement joint programs, which will significantly increase professional capabilities and provide the necessary tools for the implementation of similar involvements.

Getting enough low awareness image About program components, experience is perform find out if what kind insights there are Project: financiers, initiators and implementers about and: was found to be positive the image. Respondents More than 90 % say that the program is being implemented by the PSIG.

According to the beneficiaries, overall the Project will have significant results in the target communities. However, by combining the analyzes and the opinions of the beneficiaries during the final evaluation, the evaluation team finds that the two Special Nature Protected Areas (SPAs) selected by the Project: Khosrov Forest State Reserve in Ararat Marz in the southwest of Armenia and Tavush in the northeast of Armenia in the most affected communities adjacent to the "Dilijan" National Park of the region, however, the problem of reducing climate risks in order to strengthen the adaptation of the agricultural sector and increase adaptation to climate change has not yet been completely eliminated.

Gender equality, social and environmental risks

Gender considerations were taken into account. Women played an important role in consultations, took part in polls, etc. There is no significant gender disparity among the project participants. Although at the household level it is accepted that the head of the family is a man, all decisions are made through joint discussions.

Often, women, being busy with work or housework, invited their husbands or adult sons to the Program activities instead of them, and they believe that this does not reduce the role of anyone in the family. They don't think it violates their rights. Men or women thought it was wrong to measure gender equality by the percentage of female participation.

There are events in the program where the participation of women is very high. For example, the introduction of new varieties and hybrids of vegetables that are more adapted to climate change. In the small plots of land near the house, vegetables are cultivated, harvested and used for food mainly by women. Due to this circumstance, they naturally participate more actively in the process of organizing this work.

The analyzes show that the participation of women in the activities of the 1st components is about 35%, in the activities of the 2nd components - about 40%, in the activities of the 3rd components, the participation of women is also about 40%. There has been relatively higher participation in setting up solar dryers and unheated greenhouses. All the organizations selected within the third component carried out intensive explanatory work on the importance of gender equality, in particular on the equal participation of women in project activities.

The analyzes show that in some cases, after all the discussions, the beneficiary finally refused to participate in the Program or went to work abroad. As a result, new beneficiaries were selected. The selection of new beneficiaries was carried out with the participation of community leaders, members of the council of elders, and the person in charge of the PSIG.

In cases where a tender for the contractor was held, the contractor started the work and some beneficiaries refused to participate in the Project, in order to ensure the

continuity of the work, the contractor was assigned to carry out the work in the areas of the beneficiaries who confirmed their participation in the Project. When it was not possible to carry out the works in the territories of the new beneficiaries (tree planting, etc.) within the specified period, an agreement was reached with the Contractor to carry out the works according to the accepted agrotechnical rules (for example, next spring or autumn).

Activities under the third component contributed to risk mitigation as most of the selected beneficiaries were involved in knowledge development courses and field schools.

As a result of the studies, it was clarified that some changes were made in the purchase of mineral-organic fertilizers, because the latter have become more expensive. This contributed to the decision to reduce the amount of organic fertilizers by 45%, the amount of phosphorus fertilizers by 35%, and the amount of seeds by 25%.

It is noteworthy that the design company offered a high price for the construction of greenhouses and fruit dryers, which deviated from the budget. As a result, a decision was made to select one organization to carry out the design and construction on site.

Some of the works were partially delayed due to weather conditions, but this did not affect the project deadline and the work was completed on schedule. The project made changes to certain areas, but a new environmental and social screening assessment was not required.

A common problem for all components is the increase in the prices of goods, which is mainly caused by the increase in world prices, as well as the drop in the dollar exchange rate in Armenia.

The timely neutralization of risks was greatly facilitated by monitoring, gender, environmental and social risk management specialists who quickly identified potential risks and presented possible solutions.

OBSERVATIONS AND RECOMMENDATIONS

"Strengthening the adaptive capacity of ecosystems and communities adjacent to special protected natural areas of the Republic of Armenia ", we have a "Good" summary rating for the 1st and 3rd components, and "excellent" for the 2nd component.

The final evaluation, recommendations were formed, which are divided into four parts:

- Fixing current programs
- Design and implementation of future projects
- Wishes-suggestions voiced by the beneficiaries
- Recommendations for sustainability

Fixing current programs

1. The distribution of mineral and organic fertilizer acquired during the project was carried out according to the following principle: the amount of degraded land owned by the beneficiaries was assessed and a sufficient amount of fertilizer was provided for fertilization. This has naturally raised some questions among the beneficiaries as they want to get fertilizers for the whole area. In this case, the staff and contractors of the PSIG PH once again explained to the beneficiaries that the project aims to improve the degraded land areas. The works were carried out under the conditions of monitoring, gender and social, environmental risk management specialists of the PSYG PH on a daily basis. Cases of using fertilizers in other areas were mostly excluded. Since the main fertilization works were carried out during 2022 and continued in the spring of 2023, the result is currently visible to all beneficiaries. Here, as a recommendation, it is necessary to highlight the following:

- First of all, such a situation is the result of insufficient explanatory work with the beneficiaries. In the future, it is recommended to conduct more comprehensive and informative meetings with potential beneficiaries in order to avoid such situations.
- It is not excluded (judging by the results of discussions with individual villagers) that the latter were informed about the Project's targets, but not having enough funds (or unwilling to provide them) wanted to use the provided fertilizer for fertilizing the entire areas (degraded and normal). In such cases (for the continuation of the project or planning for new projects), it is recommended to take into account and apply the distribution mechanisms implemented on evidence bases, among which is the mechanism of providing a partial grant (cashback) for the purchased volume of fertilizer.

2. The improvement of cross-country roads was not carried out effectively in all communities, obstacles arose, particularly for the traffic of trucks. Significant deterioration of field roads after snowmelt and rainwater is also possible. In order to avoid such situations in the future, it is recommended to make reinforcement constructions as well.

3. In order to make individual connections to the improved irrigation system, there were complications related to the diameter of the pipes, causing additional costs for the residents. It is also recommended to assist residents with individual connections to the irrigation system .

4. It will take a long time, 3-5 years, to evaluate the results of the orchard and forest establishment sub-component measures, so it is necessary to continue the monitoring activities.

5. Although significant funds have been allocated within the framework of the project to strengthen the capacities of NGOs and eco-clubs, the mid-term and final evaluation as a result be revealed is that public organizations and eco-clubs in full informed they are not From the program (available: is superficial insight of the program and: of it components regarding). In order to increase the involvement of representatives of the NGO sector in similar programs, it is necessary to carry out mapping of public organizations, assessment of needs and, with the involvement of Yerevan and regional active organizations, to implement joint programs, which will significantly increase professional capabilities and provide the necessary tools for the implementation of similar involvements. It is probably necessary to constantly work with eco-clubs to ensure a high level of awareness. This is due to the fact that every year some of the students graduate from school and the new members of the eco-clubs are not sufficiently informed about the program. Another problem is the question of the remuneration of the leaders of the eco-clubs. It is necessary to look for opportunities so that the leaders of the eco-clubs are interested in doing additional work.

Design and implementation of future plans

1. As one of the main targets of the Project is the reduction of water losses and introduction of drip irrigation system, it is proposed to carry out a larger volume of irrigation system improvement and introduction of drip irrigation system, based on the lessons learned and accumulated experience from this pilot project.

2. The project is implemented in two specially protected nature areas in adjacent communities, and the construction of solid domestic waste disposal site is not included in the sub-components of the project. It is recommended to consider the possibility of building a solid waste disposal site. Taking into account the priorities of partner climate funds, it is suggested to consider the possibility of implementing the "Waste-to-energy" pilot program.

3. Watering points should be designed and constructed in such a way that animals can use both sides without harming each other.

4. Despite being aware of the fact of the implementation of the Project, the residents are generally unaware of the initiators, implementers and financing bodies of the Project. This awareness is important, in particular, in terms of creating a strong feedback loop with the population and meeting the requirements of donor organizations. Among the possible effective tools of high visibility (which are recommended to be used both during the final period of this project and in other similar projects), it is necessary to mention: early and full involvement with the beneficiaries and interested public organizations from the design stage of the project, more intensive cooperation with the local media - the best in order to highlight the results, initiation of small symbolic prize distributions (for schoolchildren, farmers, individual families or households), etc.

5. It is necessary to include local workforce as much as possible in the works of contractor organizations. It is an important indicator, the minimum indicator of which should be fixed during the design phase of similar programs and later be separately monitored and the given indicator reported. It is important to emphasize that the absence of such a component in this Program is not raised here, but the mandatory inclusion and accounting of such an indicator is emphasized. As an additional advantage of using such an indicator, it can be noted the increased visibility of the organizations implementing and financing the Project.

6. During the design phase of the project, some methodological flaws were allowed, which subsequently made it difficult to properly evaluate the effectiveness and performance of the project. Moreover, these shortcomings are assessed as not intentional, but as a result of gaps in proper methodological preparation. For example, in the list of sub-results, i.e. indicators that expect concrete and direct, measurable results, it is mentioned, for example, "Community pastures and grasslands are restored, adaptation has increased". This is an extremely global and difficult to measure indicator and should not be at the same level as other sub-results. There are also sub-goals, which are a description of the work to be done rather than an expected result.

Wishes-suggestions voiced by the beneficiaries

Residents-beneficiaries voiced various suggestions and wishes both during telephone inquiries and meetings. Although all of these recommendations were recorded, some of them are reflected in the recommendations section of this evaluation report. Only those recommendations are reflected, which in one way or another are related to the improvement of the implementation of the Project or its possible continuation. Such very important, vital wishes or suggestions for residents, such as, for example, the distribution

of seeds or the increase in the number of deep artesian wells or the repair of roads, are not reflected in this report. A summary of the recommendations made is provided below:

1. It is desirable to provide the beneficiaries with the necessary agricultural equipment for the spread of fertilizer, from the point of view of ensuring the uniformity of the spread,
2. Solve the landfill issue and support the waste recycling process,
3. In the case of effective spending of project funds and generation of savings, it is recommended to implement a larger volume of works on improving the irrigation system and introducing a drip irrigation system.
4. Assist in the sale of the harvested crop, including the dried ones obtained in the dryers.

Recommendations for sustainability

Recorded that sufficient diligence and professional skills (both by the Project Management Officers and the management of the implementing organization) have been invested in ensuring the proper implementation and results of the Project. During the discussions with the latter, determination was also felt in ensuring the stability of the achieved results of the project.

Relevant observations and recommendations are presented below:

- Implement the recommendations included in the Recommendations section of this report, for which there is an appropriate budget;
- Contribute to the implementation of a permanent and effective dialogue between the beneficiary and the community in order to create preconditions for the discussion of the issues that concern the residents and the solution of existing problems;
- Special attention to the preservation of property donated within the framework of the Program;
- Prepare and present a successful Pilot Program of approaches and applied models in two Special Nature Protected Areas for possible funding from climate funds and partner international organizations solving other problems identified in other adjacent areas or in target communities under this program (for example, implementation of a waste-to-energy pilot project);
- Initiation and implementation of other measures in target communities within the framework of new programs by climate funds or partner international organizations (for example, strengthening of forest infrastructure and creation of green jobs in rural communities);
- within the framework of the various programs implemented with the participation of the PSYG, continue to provide support to the target communities and beneficiary public organizations in the direction of strengthening professional capacities (for example, various training courses), contribute to the establishment of a permanent and effective dialogue between the beneficiary and the community through them;

- Organize regular discussions with the residents of the beneficiary communities on the effectiveness of using organic fertilizers and the importance of purchasing them with one's own resources.

Appendix 1: Stakeholder survey breadcrumbs

"STRENGTHENING THE ADAPTABILITY CAPACITIES OF ECOSYSTEMS AND COMMUNITIES RELATED TO THE SPECIAL NATURE PROTECTED AREAS OF RA" PROJECT: FINAL EVALUATION / SURVEY OF BENEFICIARIES

PREFACE:

hello to **you** Surrounding environment Ministry of Environmental Protection programs implementation office " . to order implements I am " **RA nature special maintained areas adjacent ecosystems and: communities adaptability abilities strengthening** " of the program efficiency and to influence pertaining to request Sorry to bother you. We are now evaluating the final results of the Project, we also talked during the evaluation of the mid-term results of the Project. I would be grateful if you could spare 10-15 minutes for the conversation.

Attention . Data of interviews the analysis to be is qualitative and: consolidated , that is respondents from provided the answers will be kept strictly secret , names they are not be revealed , and individual the answers any manner they are not be published

Data: of the questionnaire / respondent about

a) Interview the date_____

b) Community _____

c) Respondent first name , last name _____

_____

d) Telephone number_____

(Register without to ask)

e) Gender of the respondent: □male , □female

(Register without to ask)

f) Age _____

g) Education (higher, secondary professional, secondary) other _____

i) Yours the family are you busy? is whether with agriculture (farming , horticulture)

□ Yes □ No

1. GENERAL INFORMATION ABOUT THE PROGRAM AND DISCLAIMER

1.1 Are you aware of the program "Strengthening the adaptive capacity of ecosystems and communities adjacent to special protected natural areas of the Republic of Armenia" implemented in your community?

□I'm well aware □I've heard, but I don't know the details I'm not □aware

1.2 Do you know what the components of the program are?

□Not aware

□I know

_____

_____

_____

(mark as he says , without prompting)

1.3 Do you know which company initiated and provided the funding, who led and who carried out the work?

□Not aware

□I know

_____

(mark as he says , without prompting)

Say "let me inform you that the program is called "Strengthening the adaptive capacity of ecosystems and communities adjacent to the specially protected natural areas of the Republic of Armenia" and it was developed by the state institution "Environmental Program Implementation Office" of the Ministry of Environment.

1.4 Did you personally or your family members participate in the activities of initiating and planning the program (until 2019)?

□ Yes, I participated in the survey □. Yes, I participated in the discussions

□ Yes, I/we talked with the community management

□No, I didn't/didn't attend

2. Awareness and satisfaction with program components

2.1 Key components of the program include the implementation of smart agricultural practices and climate-resilient smart technologies in selected communities. Are you aware of what specific works have been done in your community within the scope of the project?

□Not aware

□**Water-saving drip irrigation systems have been installed in** the gardens

□ **Irrigation water supply systems have been restored**

□ **Existing cross-country roads leading to remote pastures and degraded land have been rehabilitated**

□**Fields of perennial plants were** planted

□ **Community pastures and grasslands have been restored**

□ **Water purification points have been built**

□rehabilitated **, where new perennial, drought-tolerant species have been planted.**

□ **Greenhouses with unheated lightweight structures are built**

□**Solar dryers are installed**

2.2 Are you a beneficiary of the Program, and if so, what benefits have you used?

□I am not a beneficiary

□I am a beneficiary _____

_____

2.3 How important are the activities implemented by this particular program to your economy/core business?

ask only 2.2 to those who answered "I know" to the question

□Not □important No results yet □Important □It is vitally important

2.4 How do you feel about the programs implemented in your community ?

ask only 2.1 to those who answered "I know" to the question

□Excellent □Good □Fair □Poor □Don't know

2.5 In your community, if there is a change, to what extent is it due to the

implemented program?

□Not aware □Undecided □No changes yet

□Partially □Mostly

2.6 To what extent have your expectations from the program been met?

□Completely □Mostly/Acceptable □Average □Poor

2.7 Are there any items that are not included in the program, but in your opinion should have been included?

_____

_____

_____

2.8 Do you have any additions and/or suggestions?

_____

_____

_____