Project Completion Summary

Section A: Project result and performance

1. **Basic information**

Title of project/programme	Strengthening land based adaptation capacity in communities adjacent to protected areas in Armenia
Project/Programme category	Regular project
Project period (if the project was granted an extension, include the original as well as the revised completion date)	2019-2022 (The revised completion date-2023)
Country(ies)	Armenia
Sector(s)	Public
Implementing entity name	"Environmental project implementation unit" SA of the Ministry of Environment of the RA
Type of implementing entity (MIE, NIE or RIE)	NIE
Executing entity(ies)	"Environmental project implementation unit" SA of the Ministry of Environment of the RA
Amount of financing approved (USD)	2 506 000 (in U.S Dollars Equivalent)
Project contact(s)	Project Manager – Armen Khojoyan Coordinator –Rubik Shahazizyan (tel.: +37410 651 631; email: info@cep.am)
Date of report	June 28, 2024

2. **Key milestones –** ***Please refer to the overview tab in the latest PPR. For the delay in project implementation and related reasons refer to the lessons learned tab, section on "implementation and adaptive management"***

Project inception	2019
Mid-term review (if applicable)	2023
Project completion	2023
Terminal evaluation	2023
If any, delay in implementation and reasons for delay	Due to the decision of the Adaptation Fund, due to Covid-19, the completion of the project was extended by 1 year. Besides that, the project was completed on schedule.

3. **Project overview and description**

3.1. Due to its climate and pronounced location in the South Caucasus with a mountainous landscape, fragile ecosystems and a vulnerable, agricultural based economy, the compounding effects of climate change and land degradation particularly affect livelihoods and economies of Armenia and its approximately 3 million inhabitants. In fact, climate trends over the previous 90 years have already indicated a significant warming trend. The summer season has become dryer and the number of extreme events, like hailstorms, has increased. Different climate change scenarios predict that this trend will continue to increase and substantially affect the marginal production areas. Crop and livestock production has already decreased in some areas, and if no additional climate adaptation measures were taken, will continue to decrease.

3.2. Notably areas and communities adjacent to protected areas and forests – like Khosrov Forest State Reserve and Dilijan National Park - are vulnerable due to a persistent pressure on the remaining land and pasture resources, weak rural infrastructure and the lack of alternative income opportunities. The existing capacity to adapt to a changing climate and its increasing impacts on the rural livelihoods and their production systems is low, calling for concerted efforts to addresses the compounding challenges of land degradation and climate change impacts on rural livelihoods.

Country Context

3.3. The Republic of Armenia is a mountainous, landlocked country in the Southern Caucasus region neighboring Azerbaijan (East), Georgia (North), the Islamic Republic of Iran (South) and Turkey (West). The majority of its territory (76.5%) is situated on the altitudes of 1000-2500 m above sea level with the lowest point at 800m in the Ararat Valley and the highest point being Mount Aragats with 4090m. The country has an area of some 30,000 km2 and a population of approximately 3 million. The climate is continental, with hot summers and cold winters. Landscapes are mainly plateaus and mountain ranges separating narrow plains.

3.4. The Republic of Armenia is a lower middle-income country that went through a transition to a market based economy and parliamentarian system since independence from the Soviet Union in 1991. Its economy is dominated by extractive industries and agriculture with Yerevan as its economic hub and capital city. Armenia has a per capita Gross National Income (GNI) of US$ 3770 and a poverty headcount ratio at national poverty lines of 29.8%; It ranked 85th in the 2015 UNDP Human Development Index.

3.5. Despite economic progress over the last decade, disparities between women and men remain salient in Armenia, especially in dimensions that are powerfully influenced by social norms. In domains like education and health, gender equality in outcomes in Armenia are broadly comparable with those in Europe and Central Asia and better than those of lower-middle-income countries globally. However, barriers to women's access to economic opportunities persist and gender inequalities are manifest in demographic imbalances, and underrepresentation in leadership roles. Concerted policy efforts are required to close gender gaps that hamper growth of the overall economy.

3.6. Social norms and patriarchy continue to place barriers to economic participation by women, causing both a misallocation and underutilization of women's human capital. These barriers are manifest in occupational segregation of women, a gendered concentration in particular fields of study in tertiary education, a dip in female labor force participation during the childbearing years, and the underrepresentation of women among political leaders and entrepreneurs. Gender-selection of births in favor of boys also has far reaching demographic and economic effects. As Armenia strives to grow and become competitive in the global market, effectively addressing these gender gaps can bring tangible benefits to the country as a whole.

3.7. Agriculture has traditionally been the backbone of Armenia's economy; While it's GDP contribution declined from 26% in 2000 to 18% in 2016 (World Bank, 2018), the agriculture sector provides with 44.2% still the majority of the total employment (World Bank, 2018). Much of Armenia's population is poor and highly vulnerable to any event that affects the agricultural sector (Ahouissoussi et al., 2014). The share of women engaged in informal employment in agriculture is about 82.1 % compared to 60.8% of informal workers in agriculture being men; There is a significant gender pay gap in agriculture with women average wages of approximately 65.9% of men's average wages (FAO, 2017). Women head about 26.5 % of rural households, whereas most of the land is registered and managed by men limiting women's access to land. Women have less access to build their knowledge on agricultural technical knowledge and face barriers to participating in trainings.

3.8. Land degradation is a driver of vulnerability to climate change and, through the loss of soil organic carbon, contributing to climate change. Land degradation and the diminishing capacity of agro-ecological systems to adapt to climate change are closely related. The 2015 "National Strategy and Action Program to Combat Desertification in the Republic of Armenia" recognizes natural and anthropogenic desertification factors. Natural factors include: droughts that are frequent in the Ararat valley and some areas of Vayots Dzor and Syunik regions; Sandstorms are frequently observed in Ararat valley, Vayots Dzor and Syunik regions; Moisture deficit caused by unequal distribution of seasonal and regional rainfall, landslides and floods as well as salinization. Anthropogenic factors include: Urban development, agriculture practices, absence or inappropriate application of crop rotation techniques, ineffective use of irrigation water and nutrients, overgrazing of pastures; Road construction; Illegal logging and soil contamination. Nearly half of the cropland and forest-land are affected by water erosion (220,000ha and 186200ha respectively), while approximately 170,000 ha are affected by overgrazing. Armenia has set in its Land Degradation Neutrality National Strategy voluntary and ambitious targets to achieve land degradation neutrality, a process to which this project is contributing. It is estimated that interventions on 407.5 km2 are require with an investment need of US$ 210 million until 2040.

Climate and projected climate change impacts

3.9. Armenia has a highland continental climate with hot summers and cold winters. The mean temperature in Armenia is 5.5°C, with the hottest regions being the Ararat Valley with an average 12 to 14°C. Summers are warm with a mean temperature of 16 to 17°C; however, the hottest regions typically have a high around 24 to 26°C, and extremes there can reach 38 to 40°C (FAO, 2008). Average winter temperatures are approximately –7°C. On average, Armenia receives 592 mm of rainfall annually, but levels vary significantly by region. In the Ararat Valley and Meghri region, annual precipitation is only about 200 to 250 millimeters, while some mountainous regions can receive as much as 1,000mm each year.

3.10. Long-term trends over the previous nearly 90 years indicate a change in annual ambient temperature and precipitation in Armenia for various time periods. These results show that, in recent decades, there has been a significant temperature increase. In the period of 1929-1996, the annual mean temperature increased by 0.40C and in the period from 1929-2012by 1.030C. The spatial distribution of changes in precipitation amounts is fairly irregular. Over various seasons of the year ambient air temperature changes exhibit different trends. Extremely hot summers have been observed over the last 17 years (1998, 2000, 2006, 2010). The comparison of changes in the assessment of precipitation amounts for different periods demonstrates that precipitation continues to decline. Observations showed that, in 1935-1996, there was a 6% decrease in annual precipitation, while in 1935-2012 it was close to a 10% decline. The spatial distribution of changes in precipitation amounts is fairly irregular. Over the last 80 years, the climate in the northeastern and central (Ararat Valley) regions of the country has turned arid, while precipitation has increased in the southern and northwestern regions, as well as in the western part of the Lake Sevan basin.

4. **Results and key outcomes (Alignment with the Adaptation Fund core impact indicators – Number of Direct Beneficiaries reached including women; Trainings conducted including women trained, Early Warning Systems (EWS); Assets Produced, Developed, Improved, or Strengthened; Natural Assets Protected or Rehabilitated i.e. hectares of natural habitats/ meters of coastlines) –** ***Please refer to the "Performance at completion" in the Results Tracker section in the last PPR to extract this information***

The objective of the project is to reduce the climate risk vulnerability of local communities living adjacent to the "Khosrov Forest" and "Dilijan" National Park by strengthening the adaptive capacity of the agricultural sector and reinforcing their institutional and planning capacity for climate change adaptation.

The project has three expected outcomes:

- Outcome 1: Community based, climate smart agricultural practices are implemented in degraded areas to reduce climate risks vulnerability of production systems and sustain protected areas;
- Outcome 2: Value chains for climate smart agriculture are strengthened and climate smart technologies are accessible for vulnerable rural communities, including equally for women and men;
- Outcome 3: Awareness, planning, monitoring and decision making capacity on climate smart agriculture production methods and land degradation neutrality has increased in target communities.

The project would focus on three main adaptive strategies: (i) adaptation of agro-ecological landscapes and maintaining agricultural productivity under increasing climate change, (ii) sustaining climate smart agricultural value chains through the promotion of low cost, energy saving

technologies and (iii) improved planning capacity of local communities and reinforcing their local adaptive capacities. The project would bring together the principles of land degradation neutrality (LDN) and climate smart agriculture and thereby be an important building block toward land degradation neutrality (LDN). The project would thereby be an important building block toward land degradation neutrality (LDN).
The implementation of "Climate Smart Farming" practices/techniques that will help reduce greenhouse gas emissions and increase adaptability to natural and agricultural ecosystems is of huge importance. Clearly, in conditions of temperature rise, precipitation and other climatic changes, agriculture cannot struggle against the global warming. Agriculture differentiates between a number of key areas to increase adaptability.

4.1. **Community management and business plans are formulated for climate smart agricultural value chains**

The project planned to develop 4 business plans. 4 business plans formulated.

4.2. **Awareness, planning, monitoring and decision making capacity on climate smart agriculture production methods and LDN has increased in target communities**

The project planned 300 beneficiaries, 40 percent of whom were women. The total number of beneficiaries is 3171. 53,4% of beneficiaries benefitting from awareness raising and capacity building for climate smart agriculture and LDN, which are women.

4.3. **Farmer field schools and extension services have been provided to share best practices of climate smart agriculture and LDN for the targeted communities**

The project planned 2 field schools, 200 beneficiaries, 40 percent of which were women. 2 field schools have been established. 332 beneficiaries aware of climate change impacts and appropriate responses to threats, 48% of beneficiaries aware of climate change impacts and appropriate responses to threats, which are women.

4.4. **Best practices examples and training material on climate smart agriculture are formulated, disseminated and made accessible**

4 training programs and thematic topics were planned for the program:

- Direct beneficiaries supported by the project 8748, total (direct + indirect beneficiaries) 16784. 42.6% of the direct beneficiaries are women.
- 6 training programs and 19 thematic topics, 35 courses were organized, 5 of them online. The number of participants is 2518.

4.5. **Community based adaptation planning is conducted for target communities**

The project was intended to develop 4 community-based adaptation plans for dissemination of project materials, results, best practices. 4 community based plan for dissemination of project materials, results, best practices formulated. 7 information leaflets and 8 booklets were also prepared and distributed to interested residents. The number of beneficiaries is 321.

4.6. **Strategies for sustaining climate smart agriculture and LDN in target areas have been formulated**

The project was designed to develop 3 community based strategies plans. 3 strategy plan is formulated.

4.7. **Total number of natural assets or ecosystems protected/rehabilitated**

The project was intended to restore 1112ha of degraded pastures and 167ha of degraded grasslands. 1279 ha of rangelands rehabilitated. The total number of beneficiaries is 4413.

4.8. **Total number of natural assets or ecosystems protected/rehabilitated -113 ha of cultivated land/Agricultural land rehabilitated**

The plan was to restore 103 hectares of degraded arable land. 103 ha of cultivated land/Agricultural land rehabilitated. The total number of beneficiaries is 213.

4.9. **Total number of natural assets or ecosystems protected/rehabilitated**

The plan was to restore 3 hectares of degraded slope in the form of an agroforest. 3 ha of forests rehabilitated.

4.10. **No. and type of adaptation assets created or strengthened in support of individual or community livelihood strategies**

The project was intended to improve the quality of life of 269 households. 787 households increased income, or avoided decrease in income.

4.11. **Irrigation water supply systems are rehabilitated increasing water use efficiency**

The project planned to restore 6.1 km of irrigation network and install 3 pumps. 13.2 km irrigation network was built, 2 pumps installed. The number of beneficiaries is 355.

4.12. **Water efficient drip irrigation systems are installed in selected community orchards**

The plan was to establish a 5.2ha orchard with drip irrigation system. 5,2 ha drip irrigation system installed. The number of beneficiaries is 9.

4.13. **Existing field tracks to remote pastures degraded lands are rehabilitated**

The project planned to restore 39.5 km of field tracks and install 50 culverts. 39,5 km field tracks rehabilitated, 45 culverts installed. The number of beneficiaries is 2432.

4.14. **Sowing areas of perennial plants are created reducing rangeland degradation**

According to the project, it was planned to establish 10ha of perennial sowing area. 10 ha of perennial sowing area established. The number of beneficiaries is 10.

4.15. **Community pastures and hay meadows are rehabilitated and improved their adaptive capacity**

The project planned to restore 1112ha of degraded pastures, 167ha of degraded grasslands and 103ha of degraded arable land. Rehabilitated and improved their adaptive capacity 1112 ha of pastures, 167 ha of hay meadows and 103 ha of arable lands. The number of beneficiaries is 1253.

4.16. **Livestock watering points are constructed**

The project planned to build 15 watering points. 11 watering points constructed. 4 watering points were not built because the natural springs in the planned areas had dried up. The number of beneficiaries is 354.

4.17. **Degraded slopes are rehabilitated by belt planting of perennial, drought resistant plants**

The works were carried out in the planned volumes. 3 ha of agroforestry planted.

4.18. **Smart agricultural practices**

- The works were carried out in the planned volumes. 0.5 ha of herbs were sown and 1.5 ha of degraded natural habitats were restored. The number of beneficiaries is 156;
- The plan was to build a 2.5 ha anti-hail network. 5.2 ha of anti-hail network is built. The number of beneficiaries is 9;
- The works were carried out in the planned volumes. 3.6 ha planting shrubs and mulching. The number of beneficiaries is 160.

4.19. **Non-heated, lightweight greenhouses are constructed in priority community areas**

The plan was to build 3000m^2 greenhouses. 3650 m^2 of greenhouses constructed. The number of beneficiaries is 150. Although only 46.7 percent of direct beneficiaries are women, but cultivation work and crop management is done jointly.

4.20. **Solar dryers are installed in priority community areas**

- The plan was to build 150m^2 solar dryers for drying fruits and herbs. 258 m^2 of solar dryers constructed. The number of beneficiaries is 215. Each dryer has 3 shelves, the useful surface of which is 18m^2. The percentage of direct female beneficiaries is 49.5, but 95 % of women beneficiaries have access to dryers;
- The project planned to introduce new drought-resistant and heat-resistant varieties and hybrids of vegetable crops on an area of 3.6 ha. Drought-resistant and heat-resistant varieties and hybrids of vegetables were planted on the 4.6 ha area. The number of beneficiaries is 474.

5. **Issues, challenges and mitigation measures (Environmental and social risks, gender considerations and other risks) –** ***Please refer to the lessons learned tab in the PPR, specifically the section on "Implementation and Adaptive Management"***

5.1. The state of war and the consequences of rapid spread of COVID-19 pandemic in October-December 2020 period have caused the delay in implementation. Guided by force majeure arrangements, the EPIU SA has extended the termination of contracts with contractors for 3 months.

5.2. During these 3 months, the EPIU SA prepared the technical assignments and tenders for the works and services. The tenders were announced in January-February 2021.

5.3. Despite during the work on "Community management and business plans, including for climate smart agricultural value chains and increasing adaptation of natural and agricultural ecosystems" the beneficiary lists were mostly clarified, the state of war and the rapid spread of the coronavirus caused some changes in the lists. The EPIU SA has agreed with organization developing the management plan to work intensively with communities to clarify the list of beneficiaries in January-March 2021. In addition, the EPIU SA worked intensively with community leaders and council members to clarify the final list of beneficiaries.

5.4. The terms of the works were somewhat delayed due to the absence of participants in the announced tenders or the price offer that was higher than the budgeted amount. This mainly refers to the increase of the adaptation capacities of arable lands, pastures and grasslands in the conditions of climate change. In this case, the same tenders were announced repeatedly shortly after the closure of the previous one. At the same time, the market has been monitored. If the prices of goods and services have been consistently high, the technical assignment has been developed based on the real market prices. In any case, not all the delays have had a significant impact on the project implementation.
5.5. Gender considerations are always addressed. There are no gender-based issues noted during the implementation phase and up to date. Gender participation is critical to have community participation and consultation. Women play an important role in consultations; take part in surveys, etc. There is no pronounced gender inequality in the Republic of Armenia. Despite at the household level it is accepted that the head of the household is a man, all the decisions are made through joint discussions:

- From this point of view, sometimes it was not clear to the residents why only women should participate in the discussions, while everyone is equal.
- Often women, being busy with work or housework, offered their husbands or adult sons to attend the meetings instead of them. They believe that this does not violate their rights, as all the information is passed to them after the meeting.
- Sometimes men or women thought that it was incorrect to measure the gender equality by the percentage of female participation.

- We worked intensively with women and men alike, explaining to them that it is important for us that women participate in discussions and make decisions.
- We have mainly managed to change the opinion that it is important who makes the decision. Most men and women realized that they often have different views on the same issue. When they have to make a decision, they may have different thoughts, but this does not reduce the role of anyone in the family.
- We were able to prove that raising women's awareness, level of knowledge, activism, involvement in discussions on various issues, the opportunity to make free decisions creates the opportunity to make the right decisions together and contributes to increased stability of families.
- There are some activities envisaged by the Program where the participation of women is very high. For example, the introduction of new vegetable varieties and hybrids that are more adapted to climate change. In small plots of land near the house the cultivation of vegetables, harvesting and use for food is mainly done by women. Due to this fact, they are naturally more actively participating in the process of organizing this work.
- Construction of solar greenhouses with drip irrigation and Construction of solar dryers for fruits and vegetables and herbs. The works are completed. Although only 46.7 and 49.5 percent of the direct beneficiaries of greenhouses and dryers are women, more than 90 percent of them are directly involved in cultivation and crop management. This is due to the fact that the land was privatized in 1991-92 mainly in the name of the man of the house. Female family members are also considered co-owners of the property and naturally have all the rights to the property.

6. Lessons learned (Best practices, adaptive management, what worked during the implementation and what did not, what corrective actions were taken during implementation, what are the ways to improve the intervention) – *Please refer to the lessons learned tab in the PPR, specifically the section on "Implementation and Adaptive Management"*

6.1. In the conditions of ongoing climate change, pasture and grassland adaptation work could not be carried out due to the lack of participants or high prices of supplies. According to the monitoring results, the cost of mineral-organic fertilizers, grass seeds and fuels has increased from 30% to 2.5 times. We have proportionally reduced the number of products used, discussed it with the fund and have announced a new tender. The obstacle has been overcome and the works have completed.

6.2. The project has generated a lot of interest in the communities. EPIU SA has received applications from communities for the inclusion of new settlements in the project. The issue was discussed with the Adaptation Fund and 2 new settlements were included in the program, where the same works were carried out as in all other settlements.

6.3. The funds saved as a result of the organization of tenders for the purchase of goods and works were used in accordance with the project's ideology. The implemented works improved the results and contributed to increasing the efficiency of the program.

6.4. During the reporting period we assess the risk as medium one, but it requires intensive work with community leaders, residents and contractors. EPIU SA works with community leaders, council members and residents on a daily basis. If after all the discussions the beneficiary finally refuses to participate in the Project, new beneficiaries are selected. The selection of new beneficiaries is carried out with the participation of community leaders, members of the Council of Elders and the person in charge at the EPIU SA. Additional lists are compiled, which are discussed and approved by the community leader.

6.5. In cases where a contractor tender has been held, the contractor has started work and some beneficiaries refuse to participate in the Project:

a) organizes joint discussions with the community leaders, the Contractor and the declining beneficiaries;
b) if the beneficiaries finally refuse, the stage of selection of new beneficiaries begins;
c) to ensure the continuity of works, the contractor is instructed to carry out the work in the areas of the beneficiaries that confirm their participation in the Project;
d) joint selection of new beneficiaries;
e) in cases when it is not possible to carry out the works in the new beneficiaries' areas within the set timeframe (planting trees, etc.), an agreement is reached with the Contractor to carry out the works with the beneficiary within the deadlines adopted by the agro-technical rules (for example next spring or autumn);
f) In case of fertilization of pastures, when it is necessary to prohibit grazing for 1 month, explanatory work was organized with all beneficiaries. Explanatory works were performed both by contractors and within the framework of the third component, g) Additional meetings and discussions were organized in case of inclusion of new settlements in the program. Additional courses for increasing knowledge and awareness were organized. In the new settlements, only the works planned by the Project were carried out.

7. Innovation: description of any innovative practices or technologies that figured prominently in this project – *Please refer to the lessons learned tab in the PPR, specifically the section on "innovation"*

7.1. Innovative works can be considered:

- Construction of photovoltaic plants for operation of irrigation water pumps. This measure reduced the price of electricity used to operate the pumps by about 45 percent. The community sold the amount of electricity that was not used for the operation of the pumps (autumn-winter-spring) to the energy network and used the money for other community purposes.
- Project cooperation with the Scientific Center of Vegetable Crops. This made it possible to acquaint residents with the results of new scientific research (new varieties and hybrids, new cultivation technologies).
- 2-stage restoration of degraded natural ecosystems, when phosphorous, potassium and organic fertilizers are used in autumn, and nitrogen fertilizers and seeding of local herbs in spring.
- Cultivation of wild medicinal plants in the plots near the house, in which case it is possible to obtain a large and high-quality harvest with relatively low costs.

8. **Description of the vulnerable communities and social groups affected by the project, and how they have been engaged and empowered –** ***You might want to refer as well to the section on "community/national impact" in the lessons learned tab of the PPR***

8.1. The project will therefore focus on areas adjacent to two remaining and protected forest areas: Khosrov Forest State Reserve in the Ararat Marz in south western Armenia (south east of the capital Yerevan) and Dilijan National Park in Tavush Marz in north-eastern Armenia. While the two protected sites are protected natural ecosystems, the adjacent communities are facing high rates of poverty and resource constraint livelihoods with limited capabilities to address land degradation, sustainably manage bio-diversity of the region and adapt the production systems and communities to the impacts of climate change. More specifically the project will target the Urtsadzor community located on the foothills of the western part of the Ararat valley close to Khosrov Forest State Reserve and Dilijan, Margahovit and Fioletovo communities located in the vicinity of the Dilijan National Park. "Khosrov Forest" State Reserve and "Dilijan" National Park and their adjacent ecosystems are important migratory routes for the main species registered in the Red Book of Armenia and the involvement of communities in the management of routes will significantly improve the efficiency of species conservation.

8.2. Community adjacent to Khosrov Forest State Reserve - Urtsadzor community is located in the foothills of the western part of Ararat valley and consists of three rural settlements Urtsadzor (3320 inhabitants), Lanjanist (175 inhabitants) and Shaghap (1030 inhabitants). The combined population of 4525 inhabitants in 2017 (approximately 1000 households) is mainly engaged in cattle breeding, plant cultivation and fruit growing.

a. The summers are warm, and the winters are moderately cold. Winters begin mid-December, average January temperature ranges from -3 to -5 ° C. Summer is long, from May to October, the average monthly temperature of the air reaches 24 to 26 ° C and maximum 39-40 ° C. Often heats with strong winds are observed that are causing considerable damage to agriculture. The annual precipitation is 250-300 mm. The rivers belong to the Caspian basin (Arax River).
b. Natural landscapes are semi-deserts that have been transformed into a cultivated-irrigated landscape. From the agro-climatic point of view, the community lies in the absolute irrigation zone as the average annual precipitation does not exceed 32-36 mm in summer.
c. The arable land in the community administrative area is 758ha; remote pastures are 550ha, community pastures 7767ha, perennial herbs 121ha, gardens 40ha and 163ha of land plots. In 1991, during the privatization of the lands in the country the size of one plot of land privatized in the community settlements made 0.45 ha. Crop production in the community is possible only with irrigation. On average between 2013 and 2017 250-300ha of fall wheat was produced, 40-60ha of spring barley, 40ha of cigarettes and 70ha of vegetables and melons.
d. As of 2017 data, the community residents keep 3299 heads of cattle and 3760 heads of small cattle, 90 pigs and hens. Compared to 2013, the number of cattle decreased slightly. The average milk yield of one 1 cow decreased by 300 liters reaching from 2000 liters to 1700 liters.
e. Since the crops are cultivated only in irrigated areas of the community, their yield is mainly conditioned by the quantity of irrigation water supplied and natural hazards. The analysis of the collected data shows that during the previous 5 years no increase has been observed in harvesting, though the farmers have maintained the rules of cultivation of agricultural machinery. This is mainly due to the lack of irrigation water and efficiency of the deteriorated irrigation system, where 80% of water losses occur in the primary and secondary irrigation channels. Irrigation is done openly (irrigation dykes), the majority of which are disturbed and large water losses (see photo). Another factor is frequent hails, spring frosts, high summer temperatures, hot winds.
f. Residents of rural communities live in socially unfavorable conditions. About 45% of the total annual income is received from salaries, 10% from farming, 5% from livestock, 33% from other sources (pensions, allowances, transfers from other countries, etc.).

8.3. Communities adjacent to Dilijan National Park – Dilijan, Margahovit and Fioletovo communities are located in the south-western part of Tavush Marz. Dilijan community was established in 2016 and comprises Haghartsin, Aghavnavanq, Gosh, Khachardzan and Teghut rural settlements. The total population of Dijilan and the rural communities belonging to it was 6813 people, 3551 people in the Margahovit community and 1279 people in the Fieletovo community.

a. The climate is moderately warm and humid. Dilijan, Margahovit and Fieletovo and adjacent rural communities are located in moderately damp areas with warm summers and mild winters. The rivers belong to the Caspian basin (Kura river).
b. The average monthly temperature in January is -2 ° C and 18.2 ° C in July. Air dryness is particularly evident in the winter and spring months. The relative air humidity is 65-70%, the precipitation is 600-650 mm. Winters begin in early December. It is moderate hot in summer. The average temperature in July is + 18 ° C and the maximum is 32-33 ° C. Occasionally, there are hot springs which can cause some damage to agriculture.
c. The territory of the community is almost entirely surrounded by a forest, from the upper boundaries of which the mountainous pastures begin. The area is distinguished by the great diversity of flora and fauna. Mixed forests occupy 61% of the total surface, which are distinguished by the diversity of flora and fauna.
d. The climatic conditions of the area (mild, mineral healing water, forests, highlands rich with herbs) are extremely beneficial for the recreation of the population, restoration of health and international tourism. The territory is rich in historical and cultural monuments, monasteries, fortresses, khachkars (cross-stones), bridges, tombs, monuments, and memorials.
e. Farmers are engaged in horticulture, livestock breeding, crop production, bee-keeping and feeding. The area is relatively poor with minerals but is rich in mineral water. There are two mineral water plants operating in Dilijan. From the agro-climatic point of view, the community lies in the moderate irrigation zone as the average annual precipitation does not exceed 250-300 mm in summer.
f. Autumn and spring wheat and barley can be cultivated in the community under dry conditions. Whereas the cultivation of orchards and vegetables and melons is only possible in case of irrigation. The analysis of the collected data shows that the yield of all crops is considerably lower than the national average, mainly due to the insufficient quantity of irrigation water supplied and natural hazards (e.g. hail storms). This is mainly due to the lack of irrigation water as the irrigation network is completely demolished. Another factor is the frequent recurrent hails, spring frosts, high summer temperatures, and hot winds.

- Dilijan community has vast areas of remote pastures (5879ha) and community pastures (1330ha), whereas the community keeps largely cattle, small ruminants and poultry and pigs. Compared to 2013 the number of cattle has substantially decreased by more than 40% in 2017, whereas average annual milk production decreased by 150 liters with an average between 1250 liters and 1100 liters annually.
- Margahovit community has vast areas of remote pasture (2840ha) and community pastures (990ha), hay meadows, plots and horticultural land cultivating predominately potatoes, melons, and vegetables. In the highlands of the community only autumn and spring wheat and barley can be grown in dry conditions. The community keeps mainly cattle and small ruminants, whereas the number of cattle has decreased since 2013 by about 14%. The average milk yield of one 1 cow decreased marginally by 20 liters reaching from 1520 liters to 1500 liters.
- Fioletovo community is the smallest of the priority communities and has remote pastures (90ha) and community pastures (194ha) and has a relatively large crop and horticultural production area dominated by potatoes, cabbage, beet and other annual and perennial crops. Cattle are predominately kept by the community and have seen a slight increase (approximately 5%). The average milk yield of one 1 cow amounts to 1,700 liters.

g) The presented data indicate that in all communities there are high poverty level and low birth rates, which are close to the republic's average level. Socially vulnerable target groups make up about 25 percent of the population.

8.4 According to the laws of the Republic of Armenia, the communities have the right to grant the permission for the design of construction works, the execution of construction works. Permits are paid. The amount is approved by the Council of Elders. As the Project envisages numerous design and construction works, we asked the communities to make a decision in accordance with the law to grant these permits free of charge. Most communities provided design and construction permits for free.

8.5. New Council of Elders elections were to take place in Dilijan. The community could not grant permits before the elections. We applied to the regional administration asking to solve the problem. It was decided to give one permit for all works at the cost of $ 31.3. That amount was paid from other expenses: we were able to do the design and construction work.

8.6.People are the most important aspect of the project. Striking proper collaboration between stakeholders has been instrumental in the project implementation. This is relevant both on awareness raising component and construction component.

8.7. It is very important to create a flexible system for the selection of beneficiaries. This is necessary as community leaders change frequently, with some beneficiaries leaving the country and others refusing to participate in the Project due to deteriorating social conditions. It is necessary to work not only at the community level but also at the level of regional administrations, so that it is possible to quickly select new beneficiaries, to exclude subjectivism.

8.8. It is very important for the Program to provide an opportunity to respond to changes in price levels and dollar exchange rate. Cases are possible when the prices of goods and services increase significantly. It is necessary to create an opportunity to change the result indicators by 10-15%. The same goes for exchange rate changes. The exchange rate is fixed at the end of the development of the Project, but it can change tangibly during the implementation of the Project. When the dollar is converted to the country's local currency, the amount may be insufficient to complete the works.

8.9. Day-to-day work with community leaders and council members is very important. Although everyone understands that the climate is changing, they do not have a sufficient understanding of the adaptation measures. If the leaders of the communities form a sufficient understanding of these issues, joint discussion with other stakeholders becomes very effective.

8.10. In the Republic of Armenia, pastures belong to the community and are not privatized. Improvement works are effective when they are repeated every 2-3 years. Before the start of these works, it is necessary to sign an agreement with the communities so that they allocate money in the budget to repeat the improvement works. This is more urgent in the case of communal pastures, because they are the most degraded.

8.11. Orchards also attract a lot of interest among the residents, as the crops sell well in the market. Our experience shows that it is more effective to establish orchards on 0.5-1.0ha areas. In this case, cultivation works become easier. It is necessary to unite the beneficiaries in associations, groups or cooperatives and create good conditions for the cultivation of gardens.

8.12. The results of our demographic study revealed that the main layers of the community population include:

- Land users
- Cattle breeders
- Schoolchildren (middle and high school)
- Individual entrepreneurs
- Retirees
- Employees
- Students

More than 80% of the total population in all communities, except for Dilijan, is predominantly land users and cattle breeders. In this sense it is natural that the community-level course participants should be mostly selected from these groups.
The following steps were taken to assess the needs of the residents and to include them in the program in the future.

- Development of questionnaires for knowledge assessment,
- Questionnaire analysis, which includes:

    - Assessment of the knowledge of participants through questionnaires on the issues provided,
    - Assessment of the needs of the participants on the proposed trainings,

- Assessment of the needs of the participants on preferred topics (separate points of the questionnaire give an opportunity to indicate the preferred topics that the respondent finds most important in raising his or her knowledge level).

9. **Description of how long-term institutional and technical capacity for effective adaptation has been strengthened –** ***Please refer to the lessons learned tab, section on "readiness interventions"***

Taking into account current and projected climate change scenarios a project concept aimed at increasing the level of adaptation of natural ecosystems and agricultural landscapes has been developed based on the following interrelated chain of events:

- Adaptation level of degraded natural ecosystems could be raised by restoring their integrity;
- The level of adaptation of natural ecosystems can be increased by reducing anthropogenic pressure on them;
- The level of adaptation of natural ecosystems can be increased by their proper exploitation and conservation;
- The level of adaptation of agricultural landscapes can be increased through efficient irrigation water management and the introduction of the latest technologies in agriculture;
- The level of adaptation of natural ecosystems and agricultural landscapes is more effective when it is combined with measures to improve the livelihoods of the population;
- Increasing the effectiveness of the conservation of specially protected natural areas is possible by improving the socio-economic situation of the adjacent communities;
- The adaptation of ecosystems and agricultural landscapes to climate change contributes to multiple benefits, including its commitment to land degradation neutrality.

9.1. Improvement of arable lands, hay meadows and pastures measures can be scaled up to the other regions within Armenia. We have provided mineral and organic fertilizers for arable lands. In addition to that, for hay meadows and pastures we have provided grass plants seeds typical for the region. However, when planning these works, it should be taken into account that the pastures and hay meadows are 5-10 km away from the communities, often the roads are of poor quality, the prices of fertilizers and seeds change rapidly, and sometimes the planned budget is not sufficient to carry out the entire work.

9.2.We have signed agreements with the heads of administrative units and communities, by which they undertake to maintain the result, and the EPIU SA to regularly monitor. This makes it possible to save the results and inform about it also to the neighboring settlements.

9.3. Introduction of new varieties and hybrids of vegetable crops more adapted to climate change. In the country, only one scientific center is engaged in the selection of new vegetable varieties and hybrids. This center does not have sufficient opportunities to introduce them to all communities. Our first year work showed that the residents of the communities were convinced by their own experience how effective the new varieties and hybrids are. During the monitoring, gender and social studies, all the beneficiaries have expressed a desire to get seeds or seedlings again. By after seeing the results, the rest of community population has also expressed the wish to grow the new vegetable varieties and hybrids on their land.

9.4. We have presented the experience of the project in all regions and organized many discussions. Taking into account the positive opinion and new recommendations, 1 complete package of project and 2 concepts were developed and presented to the Adaptation Fund.

9.5. The construction of small greenhouses and solar dryers for drying fruits has aroused great interest among all. This is due to the fact that the product is used for own needs and for sale. Many residents study the experience and plan to build greenhouses or dryers on their plots.

9.6. Prior to the start of the works, agreements were signed with the community leaders to support the works. Beneficiaries were provided with professional advice, in which scientists-specialists in growing vegetables and berries were involved. By the act approved by the government, the communities were handed over the field roads, irrigation points, irrigation system, and solar photovoltaic stations. At the beginning of the project, conservation agreements were signed with all communities. The results were handed over to the beneficiaries in a contract that clearly stated the result provided to them within the framework of the program to keep their commitment. The contract specifies the price of the result and the right of the EPIU to take the money back from the beneficiary in case of failure to maintain it. Communities and the individual stakeholders are interested in maintaining the results as the benefits are obvious. At the same time, the members of the interdepartmental Project Steering Committee, the regional authorities, who also have control rights, are regularly informed about the progress of the work.

10. **An overview of complementarity and/or coherence of with other climate finance sources in the context of this project (synergies with other projects, national plans etc.) –** ***Please refer to the lessons learned tab, section on "complementarity and coherence".***

21 main strategic, projects and other documents have been developed in Armenia, which are directly connected with biodiversity and agro-biodiversity conservation and to which the proposed project intervention relate:

1. Republic of Armenia 2014-2025 Strategic Program of Prospective Development.
2. Program of the Government of the Republic of Armenia (2021-2026).
3.Second National Environmental Action Programme of the Republic of Armenia
4. Strategy of the Republic of Armenia on Conservation, Protection, Reproduction and Use of Biological Diversity.
5. Strategy and state program of conservation and use of specially protected nature areas of the Republic of Armenia.
6. National Action Programme to Combat Desertification in.
7. Community Agricultural Resource Management and Competitiveness.
8. "National Strategy on Human Rights Protection.
9. Social-Economic Development Program of the RA Ararat marz, RA Lori marz and RA Tavush marz.
10. GEF-6,7 National Portfolio.
11. Technology Need Assessment (TNA).
12. Gender Equality Strategy.
13. The Law "On Ensuring Equal Rights and Equal Opportunities for Women and Men".
14. Solar powered irrigation systems for climate-smart farming.

15. Solar power for energy autonomy and forest conservation in Tavush region/SLM project funding.
16. Implementation of "Intended Nationally Determined Contributions" of the Republic of Armenia.
17. Armenia in rural communities.
18. Improving living conditions through the use and protection of agro-biodiversity in rural communities of Armenia.
19. Oxfam in Armenia.
20. Implementation of Armenia's LDN commitments through sustainable land management and restoration of degraded landscapes.
21. Forest resilience of Armenia, enhancing adaptation and rural green growth via mitigation.

11. **Sustainability, scalability and replicability –** ***Please refer to the lessons learned tab, section on "climate resilience measures"***

11.1. Agreements have been concluded with the communities on mutual cooperation and the protection of results.

11.2. After the completion of the works, the results are handed over to the community by a relevant act.

11.3. Awareness raising programs are designed on the principle that all stakeholders are primarily involved in raising awareness; they got an explanation that it is in their best interest to maintain the results.

11.4. Savings realized during the tendering procedures could be used to further improve the project.

11.5. Continuous monitoring of the market of goods and services and matching purchase requests to market prices are performed.

11.6. Project specialists regularly visit the project implementation areas, record problems and swiftly resolve them.

11.7. The results of the project were covered by mass media and regional televisions.

11.8. Improvement of arable lands, hay meadows and pastures measures can be scaled up to the other regions within Armenia. We have provided mineral and organic fertilizers for arable lands. In addition to that, for hay meadows and pastures we have provided grass plants seeds typical for the region. However, when planning these works, it should be taken into account that the pastures and hay meadows are 5-10 km away from the communities, often the roads are of poor quality, the prices of fertilizers and seeds change rapidly, and sometimes the planned budget is not sufficient to carry out the entire work.

11.9. Introduction of new varieties and hybrids of vegetable crops more adapted to climate change. In the country, only one scientific center is engaged in the selection of new vegetable varieties and hybrids. This center does not have sufficient opportunities to introduce them to all communities. Our first year work showed that the residents of the communities were convinced by their own experience how effective the new varieties and hybrids are. During the monitoring, gender and social studies, all the beneficiaries have expressed a desire to get seeds or seedlings again. By after seeing the results, the rest of community population has also expressed the wish to grow the new vegetable varieties and hybrids on their land.

11.10. We have presented the experience of the project in all regions and organized many discussions. Taking into account the positive opinion and new recommendations, 1 complete packag of project and 2 concept were developed and presented to the Adaptation Fund.

11.11. In general, the following approach adopted by us contributed to the stability of the work, the preservation of results and the dissemination of best practices:

- Ensuring participatory approach;
- The implementation of activities that are accessible to large groups of population;
- Involvement of non-governmental organizations and capacity building;
- Close cooperation with community leaders and community members;
- Public awareness on progress and outcomes of the project;
- Raising population's awareness on the objective, results and maintenance benefits;
- The existence of a legally binding agreement with communities on the maintenance and sustainability of project results.

Section B: Project expenditure

(The use of spreadsheet is recommended to avoid numerical errors.)

Project budget (Due to the fact that the program due to Covid-19 was extended by 1 year, the implementation of part of the works of the first and second year was moved to 2023)

Outcome/Output			Notes	Y-1	Y-2	Y-3	TOTAL
Component 1		Total Component 1		507,041	1,170,627	55,515	1,733,183
1	1.1	Construction Company Sub 1	Irrigation system construction	150 000	482 566	-	632.566
			Installation of 38 kilowatt-hour solar pumps	23 041	30 000	-	53.041
			Establishment of parks without drip irrigation system	35 000	100 000	-	135.000
	1.2	Construction Company 1	Construction of drip irrigation system	10 000	64 833	-	74.833
	1.1-1.2	Design Company 1	Preparation of Design-Estimated Documents	50 000	-	-	50.000
	1.3	Construction Company 2	Reconstruction of existing field tracks and Installation of water culverts	100 000	209 315	-	309.315
		Design Company 2	Preparation of Design-Estimated Documents	31 000	-	-	31.000
	1.4	Implementing Company	Rehabilitation of arable lands and	8 000	14 000	9205	31.205
	1.5		Rehabilitation of community pastures and hay meadows	60 000	180 000	40310	280.310
			Establishment of parks with drip irrigation system	10 000	42 600	-	52.600
	1.6	Construction Company 1	Construction of livestock watering points	20 000	31 313	-	51.313
	1.7	Implementing Company	Increasing adaptation of degraded slopes	10 000	16 000	6000	32.000
Component 2		Sub-Total Component 2		114 000	192397	36 000	342397
	2.1	Implementing Company	Smart agricultural practices, 0,5 ha sowing of herbs, Creation of testing areas on the fields	5 000	10 617	-	15617
	2.2	Implementing Company	Demonstration of land improvement with organic fertilizers on	2000	3000	2200	7200

			household lands				
	2.2	Construction Company 2	Construction of solar greenhouses with drip irrigation	20 000	50 000	20 000	90.000
	2.3	Construction Company 2	Construction of solar dryers for fruits and vegetables and herbs	15 000	60 000	10 800	85.800
		Implementing Entity	Construction of anti-hail nets	-	41 667		41.667
			The introduction of heat-resistant, dry resistant new varieties and crops	2000	6 000	3000	11.000
			Planting shrubs and mulching	5 000	21 113	-	26.113
	2.4	Consulting Company 1	Community management and business plans, including for climate smart agricultural value chains and increasing adaption of natural and agricultural ecosystems	65 000			65.000
Component 3		Sub-Total Component 3		61000	60500	78500	200000
	3.1	Consulting Company 2	Workshops	5 000	-	-	5000
			Development of questionnaires and conducting surveys	4 000	-	-	4 000
			Development of field schools training programs	8 000	-	-	8 000
			Organization of field school groups, knowledge enhancement, demonstration field experiments	5000	15000	15000	35000
	3.2	Consulting Company 2	Explore communities' needs and capacities;	12 000	-	-	12 000
			Develop a training and awareness-raising program,	12000	-	-	12 000
			Develop topics for the project	4000	-	-	4000
			Implement knowledge and skills training program	2000	15 000	15 000	32 000

	3.3	Consulting Company 2	Develop a plan for dissemination of project materials, results, best practices,	-	2500	2500	5 000
			Disseminate project materials, results, best practices,	1500	3000	15000	19 500
	3.4	Consulting Company 2	Develop strategies for sustaining climate smart agriculture and LDN in target areas.	-	3000	8000	11 000
			Determine the existing non-governmental organizations, women, youth, environmental and other unions in the communities and develop capacity building plan for them.	2000	12 000	12 000	26 000
	3.5	Consulting Company 2	Establishment and implementation of Monitoring System for land based adaptation measures and land degradation neutrality	5500	10000	11000	26500
Total: Project Components				682,041	1.423.524	170.015	2,275,580
Project Execution costs (EPIU)1.5% of total budget)				11.376	11.378	11.376	34.130
Total Project Cost				693.417	1.434.900	181.393	2.309.710
IE Fee / Oversight Costs (*max 8.5% of total budget)				44.165	74.393	77.732	196290
Total Project/Programme Cost				737.582	1.509.293	259.125	2.506.000

- **Budget Notes:**

N 1	Construction company 1 to carry out activities 1.1,1.2,1.6
N 2	Design company 1 to carry out the preparation of design documents for the activities 1.1,1.2
N 3	Construction company 2 to carry out activities 1.3,2.2,2.3,
N	Design company 2 to carry out the preparation of design documents for the activity 1.3

4	
N 5	Implementing entity to carry out activities 1.4,1.5,1.7,2.1,2.2,2.3
N 6	Consulting company 1 to carry out activity 2.4
N 7	Consulting company 2 to carry out the activities envisaged in component 3

- **IE Fee / Oversight Costs (*max 8.5% of total budget)**

		Y-1	Y-2	Y-3	TOTA L
Project Manager		8.990	8.990	9.010	26.990.
Coordinator		8.330	8.330	8.330	24.990
Monitoring Specialist		7.660	7660	7.670	22.990
Social and Gender risk assessment specialist		5830	5830	5840	17500
Environmental risk specialist		5830	5830	5840	17500
Monitoring and Evaluation 67685					
Quarterly and annual report	EPIU staff				
Final report	EPIU staff				
Project Management Committee meetings	Project Manager	700	700	700	2100
Technical supervision	Expert		9423	9427	18850
Copyright supervision	Expert		2190	2190	4380
Inception and final workshops	EPIU staff	2000		2000	4000
Midterm evaluation	Internati onal expert		20 000		20 000
Final Evaluation	Internati onal expert			20 000	20 000
External audit		3000	3000	3000	9000
Translation		1500	1500	2500	5500
Other expenses		830	830	830	2490
Total cost		44670	74.283	77337	196290

- **Project Execution costs (EPIU)1.5% of total budget**

		Y-1	Y-2	Y-3	TOTAL
Finance Officer		4190	4190	4196	12576
Administra tive support,		3100	3100	3120	9320
Procureme nt specialist		1980	1980	1960	5920
Field trips		1160	1160	1180	3500
Misc		930	930	924	2784
Total		11360	11360	11380	34130

● **Actual expenditures**

- Expenditure for 2019-2020: $ 84293,5
- Expenditure for 2020-2021: $167131,1
- Expenditure for 2021-2022: $1060031,7
- Expenditure for 2022-2023: $1194543,7

● **Variance notes**

There have been no changes to the budget.

Section C: Appendices (optional)

●**Participants list of an inception workshop (Annex 1)**

• **Key project staff list**

Project Manager – A. Khojoyan
Coordinator -R. Shahazizyan
Monitoring Specialist – T. Torosyan
Social and Gender risk assessment specialist – A. Tadevosyan
Environmental risk specialist – G. Qishmiryan
Finance Officer – G. Badalyan
Administrative support – V. Manukyan
Procurement specialist – Zh. Dadiyan

- **Results tracker (Annex 2)**
- **Reports and other publications**
  - 1st evaluation report (Annex 3),
  - 2nd evaluation report (Annex 4),
  - Final evaluation report (Annex 5),
  - Report of the management board of the grant project and the final workshop (Annex 6),
  - Independent Auditor`s Report (Annex 7)
- **Websites**

https://www.epiu.am/en/strengthening-land-based-adaptation-capacity-in-communities-adjacent-to-protected-areas-in-armenia-grant-project/

- **Any other resources**

The knowledge products generated in the framework of the project ‘’Strengthening land-based adaptation capacity in communities adjacent to protected areas in Armenia’’ have been shared with the AF Secretariat previously (21 November 2023).