



## ADAPTATION FUND

AFB/PPRC.21/12  
28 September 2017

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Adaptation Fund Board  
Project and Programme Review Committee  
Twenty-First Meeting  
Bonn, Germany, 10-11 October 2017

Agenda Item 6 h)

### **PROPOSAL FOR ARMENIA (2)**

## Background

1. The Operational Policies and Guidelines (OPG) for Parties to Access Resources from the Adaptation Fund (the Fund), adopted by the Adaptation Fund Board (the Board), state in paragraph 45 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US\$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the endorsement of the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would ultimately require the Board's approval.

2. The Templates approved by the Board (Annex 5 of the OPG, as amended in March 2016) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

*For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.*

3. The first four criteria mentioned above are:

- (i) Country Eligibility,
- (ii) Project Eligibility,
- (iii) Resource Availability, and
- (iv) Eligibility of NIE/MIE.

4. The fifth criterion, applied when reviewing a fully-developed project document, is:  
(v) Implementation Arrangements.

5. It is worth noting that since the twenty-second Board meeting, the Environmental and Social (E&S) Policy of the Fund was approved and since the twenty-seventh Board meeting, the Gender Policy (GP) of the Fund was also approved. Consequently, compliance with both the ESP and the GP has been included in the review criteria both for concept documents and fully-developed project documents. The proposals template was revised as well, to include sections requesting demonstration of compliance of the project/programme with the ESP and the GP.

6. In its seventeenth meeting, the Board decided (Decision B.17/7) to approve "Instructions for preparing a request for project or programme funding from the Adaptation Fund", contained in the Annex to document AFB/PPRC.8/4, which further outlines applicable review criteria for both concepts and fully-developed proposals. The latest version of this document was launched in October 2016 following an update of the Operational Policies and Guidelines in March 2016.

7. Based on the Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Fund was sent out on April 8, 2010.
8. According to the Board Decision B.12/10, a project or programme proposal needs to be received by the secretariat no less than nine weeks before a Board meeting, in order to be considered by the Board in that meeting.
9. The following project concept titled “Sustainable management of adjacent ecosystems of specially protected nature areas of the RA and capacity building in communities” was submitted by the Environmental Project Implementation Unit (EPIU) of the Ministry of Nature Protection of Armenia, which is a National Implementing Entity of the Adaptation Fund.
10. This is the second submission of the proposal using the two-step submission process. It was received by the secretariat in time to be considered in the thirtieth Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number ARM/NIE/Forest/2017/1, and completed a review sheet.
11. In accordance with a request to the secretariat made by the Board in its 10th meeting, the secretariat shared this review sheet with the World Bank, and offered it the opportunity of providing responses before the review sheet was sent to the PPRC.
12. The secretariat is submitting to the PPRC the summary and, pursuant to decision B.17/15, the final technical review of the project, both prepared by the secretariat, along with the final submission of the proposal in the following section. In accordance with decision B.25.15, the proposal is submitted with changes between the initial submission and the revised version highlighted.

## **Project Summary**

Armenia – Sustainable management of adjacent ecosystems of specially protected nature areas of the RA and capacity building in communities

Implementing Entity: EPIU

Project/Programme Execution Cost: USD 200,000

Total Project/Programme Cost: USD 2,310,000

Implementing Fee: USD 196,000

Financing Requested: USD 2,506,000

### Project Background and Context:

The Republic of Armenia is a mountainous, landlocked country with 76.5% of its territory situated on altitudes of 1000-2500 m above sea level. The climate is continental, with hot summers and cold winters, and an annual average precipitation that varies from 200-600mm. Armenia hosts exceptionally rich and globally significant biodiversity, but due to intensive nature use the level of anthropogenic changes of natural landscapes in the country is high. The proposed project aims to reduce the vulnerability of the Urtsadzor and Dilijan local communities living adjacent to the Khosrov Forest State Reserve and Dilijan National Park respectively, by strengthen the communities' adaptive capacity through technical interventions, awareness raising and knowledge dissemination. Through this approach, the project also intends to realize co-benefits of natural ecosystem recovery and enhanced resilience to climate change which would accrue to the Forest State Reserve and Dilijan National Park due to reduced anthropogenic pressure from community members.

Component 1: Community capacity building to climate change conditions (including agriculture and livestock). (USD 1,910,000)

This component will focus on building the technical capacity of local producers (mainly micro and small) located in project areas, using community based adaptation approaches. The component will reduce the climate change effects in agriculture by implementing the following activities: Renovation of the main irrigation water supply systems; Establishment of drip irrigation intensive orchards in communities; Restoration of existing field tracks, pastures, grasslands and abandoned agricultural lands; Rehabilitation of community pasturelands and grasslands by means of surface improvement and construction of livestock watering points; Improving fodder management through the establishment of sowing areas of perennial plants (lucerne, sainfoin) to create a sustainable base for fodder; Establishment of agroforestry systems on degraded slopes; and Strengthening monitoring systems for climate smart agriculture, land degradation neutrality, forest and ecosystem adaptation. Under this component, the project also intends to install alternative hot water supply systems for the public sector, construct non-heated greenhouses, and construct solar dryers for fruits, berries, vegetables and herbs. The component will also focus on the dissemination of best practices in the farm enterprise and public sector.

Component 2: Raising public awareness and knowledge level on climate change and adaptation practices (USD 200,000)

This component aims to build a knowledge base on the increase of ecosystem adaptation level and the interconnection of community capacity building, and will focus on increasing the knowledge and awareness of various target groups of the population. The component will

develop training programs targeting specific groups within the communities such as teachers, specialists of regional agricultural support centers, and municipal employees. The training program will use a Lecturer-listener based model for awareness raising. Best practice and lessons learnt from the project will be disseminated using mass media and local self-government bodies and will be supported by the elaboration, publication and dissemination of public information leaflets and booklets in the communities of the marz.



ADAPTATION FUND

## ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular-sized Project Concept

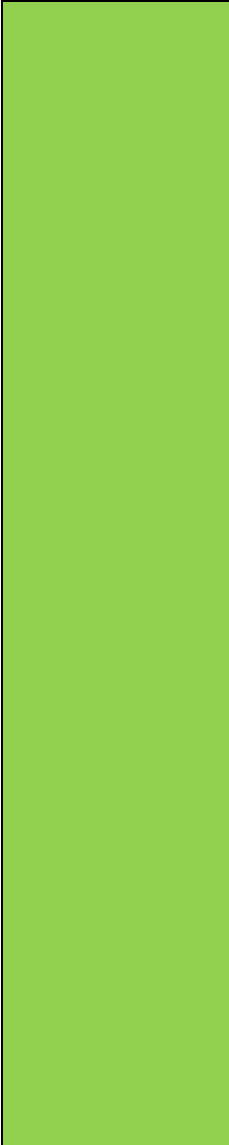
Country/Region: **Armenia**Project Title: **Sustainable management of adjacent ecosystems of specially protected nature areas of the RA and capacity building in communities**AF Project ID: **ARM/NIE/Forest/2017/1**

IE Project ID:

Reviewer and contact person: **FarayiMadziwa**IE Contact Person: **Samvel Baloyan and Anush Lokyan**Requested Financing from Adaptation Fund (US Dollars): **2,506,000**Co-reviewer(s): **Daouda Ndiaye**

Review Criteria	Questions	Comments 23 August 2017	Comments 7 September 2017
Country Eligibility	1. Is the country party to the Kyoto Protocol?	Yes	
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	Yes	
	2. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate	Unclear. Component 1 does not include outputs that can be linked to the component outcomes. It is unclear how the activities listed under component 1 are tied to the component outputs. The project needs to be clear on the specific current status of the two communities, the specific	

	<p>change and build in climate resilience?</p>	<p>farming activities they are doing e.g. beef or dairy farming, which crops are being grown and which farming practices are currently being used to grow them etc. The proposal identifies climate trends, but it is unclear how they are specifically affecting activities in the two communities e.g., in what way are the observed climate effects of increasing temperature rise, increasing intensity of rainfall, hail, and strong winds affecting livestock production, crop production, bee keeping etc? In addition, it is unclear what the source of water for irrigation and livestock is, what climate issue the planned greenhouse, solar water heaters, reconstruction of rural roads etc will address. Please also clarify the link between solar water heaters for the public and the adaptation challenge the project proposes to address. In overall, it needs to be clear what exists in the project areas and what will change as for example, the areas are already under irrigation and the project is proposing establishment of an irrigation system. The proposal should then go on to identify specific actions that will address specific current climate impacts being observed on clearly explained farming activities so that each specific output can be linked back to specific activities and in turn can be linked to specific outcomes.</p> <p><b>CR1:</b> Please outline specific and concrete outputs that would be related to the proposed activities and outcomes for the</p>	<p><b>CR1:</b> Not addressed. The outputs in the table under the section “Project / Programme Components and</p>
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		<p>two project components.</p> <p><b>CR2:</b> The description in Part II, A of the proposal should clearly distinguish the proposed project from a “business-as-usual” development or environmental protection project and clearly explain the project rationale in relation to the climate scenarios and observed climate trends outlined in the proposal. Please demonstrate how the proposed project activities are linked to addressing past, observed or expected climate change. Please refer to the instructions for preparing a request for project or programme funding from the adaptation fund which can be found in Annex V of the Fund’s OPG, available on the Fund’s website.</p>	<p>Financing” are not concrete and are more suited to reflect outcomes. Please identify concrete outputs related to specific project activities that have been identified under Part II, Section A.</p> <p>Please use consistent language in the title of the project components. There is variation in the description of component 1 between the table on page 18 and the description used on pages 26 and 35.</p> <p><b>CR2:</b> Not addressed. The project area is described as already having irrigation infrastructure and the farming practice in the project areas as described on pages 27 and 28, is solely irrigation. It appears from the description provided under Part II, Section A, that the challenges identified in the project area could be more to do with broken-down irrigation infrastructure, lack of access to other pastures and dated “unmechanized” agricultural practices. Please demonstrate how the proposed project activities deviate from business as usual and how they address past, observed or expected climate change. Please also clarify how the installation of modern energy saving technologies will contribute to building climate resilience in the project area.</p>
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	<p>3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?</p>	<p>Unclear. While potential project beneficiaries have been identified, the current status quo and existing vulnerabilities are still unclear and it is difficult to determine the additional benefits to the communities as a result of the project. This section will be reassessed once CR1 and CR2 are addressed.</p> <p><b>CAR1:</b> Please refer to CR1 and CR2 and provide a further description of any economic, social and environmental benefits as necessary.</p>	<p><b>CAR1:</b> Not addressed. Please determine any economic, social and environmental benefits as necessary following a clear identification of concrete project outputs and outcomes. Refer to CR1 and CR2.</p>
	<p>4. Is the project / programme cost effective?</p>	<p>No. The proposal should first address CR1 and CR2 and identify concrete adaptation options for the project.</p> <p><b>CR3:</b> Please discuss the proposed adaptation solution in contrast with alternative measures that could be taken to achieve the same project objectives.</p>	<p><b>CR3:</b> Not addressed. Without adequately addressing CR and CR2, the approach the project intends to follow and the alternative option remain unclear. Please provide a logical explanation of the proposed project scope and clear path to achieving project outcomes and identify an alternative approach that could have achieved the same results.</p>

	5. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?	Unclear. The project identifies national plans and strategies that the project is consistent with but does not describe in what way it is consistent with these. <b>CR4:</b> Please briefly provide an explanation of how the project is consistent with the identified national strategies and plans.	<b>CR4:</b> Addressed for the concept stage. However, at the fully developed proposal stage, the way in which the project complies with all the plans, programmes and national acts identified on page 38 should be clearly explained.
	6. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund??	Yes. The project will follow international best practice for land rehabilitation and restoration and will comply with the country's law on Urban development as well as labour regulations for construction activities.	
	7. Is there duplication of project / programme with other funding sources?	No.	

	<p>8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?</p>	<p>Yes. The project identifies training courses and mass media communications as methods of disseminating knowledge and raising awareness. However, at the fully developed proposal stage, the proposal should organize the content for the component and add information as necessary to clarify how the knowledge management system will work. This includes clarifying what kind of information will be gathered, from where will information be gathered, who the target audience will be, at what point information/data will be gathered, in what form it will be gathered and disseminated, whether information management processes will differ between different target groups and how, what measures will be taken to cater for knowledge needs between different audiences, how knowledge and information will be managed internally, how it will be managed externally, that is, how external audiences will access information etc.</p>	
	<p>9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund?</p>	<p>Unclear: Target groups have been identified, but it is unclear whether any consultation has been done.  <b>CR5:</b> Please explain if any initial consultation has been done with any stakeholders, in particular with vulnerable groups, and taking gender issues into consideration, including the outcome of such consultation.</p>	<p><b>CR5:</b> Addressed.</p>

	10. Is the requested financing justified on the basis of full cost of adaptation reasoning?	Yes, although CR1 and CR2 need to be adequately addressed. The project intends to target resilience activities within the Urtsadzor and Dilijan communities with co-benefits accruing to the Khosrov Forest Reserve and Dilijan National Park respectively. However, the relationship between specific activities and concrete outputs and their link to specific outcomes is still unclear and in addressing CR1 and CR2 the project should demonstrate how the proposed activities are relevant in addressing the project adaptation objective.	
	11. Is the project / program aligned with AF's results framework?	Yes. However, additional information should be provided as necessary upon addressing CR1 and CR2.	
	12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	Unclear: While the project intends to ensure sustainability through public awareness and dissemination of knowledge, it is unclear how this knowledge management system will be maintained after project closure, and unclear how established infrastructure will be maintained, and by who, including through what means. There is positive mention of the participation of local organizations, community administrations and NGOs in the sustainability of the project, but it is unclear whether they have been consulted and whether they have indicated an interest to continue supporting project activities beyond the Adaptation Fund lifespan. <b>CR6:</b> Please explain arrangements that will be put in place to sustain project	<b>CR6:</b> Addressed.

		activities and the role of the different identified potential actors who will ensure sustainability of the project, including a description of how any established or upgraded infrastructure will be maintained.	
	13. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	<p>Yes. However, further clarification is needed.</p> <p><b>CR7:</b> Please explain if there are any cultural, traditional, religious, or any other grounds that might result in differential allocation of benefits between men and women, and whether access to project benefits might need to be further assessed?</p> <p><b>CR8:</b> The project identifies a few indigenous people in the project location. Please describe the involvement and inclusion of indigenous people in project design and planning and any consultations with them that have been undertaken.</p> <p><b>CR9:</b> Please refer to CR1 and CR2 and with due consideration of planned construction activities which include a road, water extraction, farming activities etc, provide further clarification regarding the proposal conclusion that the project will:</p> <ul style="list-style-type: none"> <li>(i) Cause no harm to natural habitats</li> <li>(ii) Not contribute to release of any green-house gasses</li> <li>(iii) Not generate any environmental pollution</li> <li>(iv) Not create any damage to land and soils</li> </ul>	<p><b>CR7:</b> Addressed</p> <p><b>CR8:</b> Addressed</p> <p><b>CR9:</b> Not addressed. CR1 and CR2 still need to be addressed. Clearly outlining the proposed activities and concrete outputs should allow for effective screening of risks. Please address CR1 and CR2 and:</p> <ul style="list-style-type: none"> <li>(i) identify which groups might not be able to access project benefits under the principle of access and equity.</li> </ul> <p>In addition, please provide further clarification regarding the proposal conclusion that the project will:</p> <ul style="list-style-type: none"> <li>(i) Cause no harm to natural habitats</li> </ul>

		<p>Besides, the bulk of the activities (component 1) are yet to be identified in detail, which will be done in a participatory process. It is highly recommended that these are identified during the preparation of the fully-developed project proposal to allow for adequate risk identification and impact mitigation and prevention. Given the small scale and limited range of possible interventions, having unidentified subprojects (USPs) is not justified. A USP approach will require the development of an Environmental and Social Management Plan (ESMP) capable of dealing with all the aspects of the envisaged USPs, which would be much broader than the more limited range of potential risks when activities will have been identified. It is further not clear of the required capacity to implement such an ESMP is present. Given its location, at both intervention sites, there are inherent ESP risks (biodiversity, natural habitats) as well as heritage, soils, access and equity, marginalised and vulnerable groups.</p>	<ul style="list-style-type: none"> <li>(ii) Not have a negative impact on biodiversity conservation</li> <li>(iii) Not contribute to release of any green-house gasses</li> <li>(iv) Not generate any environmental pollution</li> <li>(v) Not create any damage to land and soils</li> </ul>
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	Yes	
	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	Yes, the fee is 8.5%.	Yes. The IE made some changes to the project budget and the fee was adjusted to 8.48%
	3. Are the Project/Programme Execution Costs at or	Yes. The fee is 8.58%.	Yes. The IE made some changes to the project budget and the fee was adjusted to 8.66%

	below 9.5 per cent of the total project/programme budget (including the fee)?		
Eligibility of IE	4. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes. EPIU is an accredited national implementing entity	
Implementation Arrangements	1. Is there adequate arrangement for project / programme management, in compliance with the Gender Policy of the Fund?	n/a (Not required at Project Concept stage)	
	2. Are there measures for financial and project/programme risk management?	n/a (Not required at Project Concept stage)	
	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy and Gender Policy of the Fund?	n/a (Not required at Project Concept stage)	
	4. Is a budget on the Implementing Entity Management Fee use included?	n/a (Not required at Project Concept stage)	
	5. Is an explanation and a breakdown of the execution costs included?	n/a (Not required at Project Concept stage)	
	6. Is a detailed budget including budget notes included?	n/a (Not required at Project Concept stage)	

	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	n/a (Not required at Project Concept stage)	
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	n/a (Not required at Project Concept stage)	
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	n/a (Not required at Project Concept stage)	
	10. Is a disbursement schedule with time-bound milestones included?	n/a (Not required at Project Concept stage)	

<p><b>Technical Summary</b></p>	<p>The proposed project concept intends to reduce the vulnerability of the Urtsadzor and Dilijan local communities living adjacent to the Khosrov Forest State Reserve and Dilijan National Park respectively, by strengthen the communities' adaptive capacity through technical interventions, awareness raising and knowledge dissemination. The project also intends to realize co-benefits of natural ecosystem recovery and enhanced resilience to climate change which would accrue to the Forest State Reserve and Dilijan National Park due to reduced anthropogenic pressure from community members.</p> <p>The initial technical review found that the proposal lacked clear concrete outputs and had sections that were difficult to understand in terms of the adaptation reasoning and logical flow of content. As a result, it was difficult</p>
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to ascertain the contribution of the project to building climate resilience outside from business as usual practices in the target area, project benefits, and how the project was consistent with national or sub-national sustainable development strategies, policies and plans. In addition, the concept lacked an adequate description of cost effectiveness, the process followed during initial public consultations, the arrangements that would be made for project sustainability, and also lacked adequate justification for the conclusions of the environmental and social risk screening.

The final technical review finds that the revised document has not adequately addressed a considerable number of the initial clarification requests and the concept still needs to identify concrete project outputs, clearly describe how the proposed activities build resilience of the target communities, and reconsider the conclusions made to the environmental and social risk screening based on concrete project activities and outputs. The proposal would also need to provide an adequate description of project benefits and cost effectiveness based on the identified concrete activities and outputs. The following observations are made, to be addressed by the proponent:

- a) Please identify concrete outputs related to the project activities that have been identified under Part II, Section A. In addressing this issue, please also use consistent language in the title of the project components.
- b) Please demonstrate how the proposed project activities deviate from business as usual and how they address past, observed or expected climate change. Please also clarify how the installation of modern energy saving technologies will contribute to building climate resilience in the project area.
- c) Taking into consideration (a) above, please provide a logical explanation of the proposed project scope and approach and identify an alternative approach that could have achieved the same results.
- d) Clearly outlining the proposed activities and concrete outputs should allow for effective screening of risks. Please address CR1 and CR2 and provide further clarification regarding the conclusions made following environmental and social risk screening, particularly regarding:
  - (i) identifying which groups might not be able to access project benefits under the principle of access and equity.
  - (ii) the conclusion that the project will cause no harm to natural habitats,
  - (iii) the conclusion that the project will not have a negative impact on biodiversity conservation,
  - (iv) the conclusion that the project will not contribute to release of any green-house gasses,
  - (v) the conclusion that the project will not generate any environmental pollution, and
  - (vi) the conclusion that the project will not create any damage to land and soils.

	e) Please determine any economic, social and environmental benefits as necessary following a clear identification of concrete project outputs and outcomes.
Date:	8 September 2017

## RESPONSE SHEET PROVIDED BY EPIU TO ADDRESS THE OBSERVATIONS MADE BY THE BOARD AT ITS 29<sup>TH</sup> MEETING

AFB/PPRC.20/7



ADAPTATION FUND

### ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL


PROJECT/PROGRAMME CATEGORY: Regular-sized Project Concept


Country/Region: **Armenia**Project Title: **Sustainable management of adjacent ecosystems of specially protected nature areas of the RA and capacity building in communities**AF Project ID: **ARM/NIE/Forest/2017/1**IE Project ID: Requested Financing from Adaptation Fund (US Dollars): **2 528 000**Reviewer and contact person: **Farawi Madziwa** Co-reviewer(s): **Fareeha Iqbal**IE Contact Person: **Samvel Baloyan**

Review Criteria	Questions	Comments 27 January 2017	Comments 14 February 2017	Responses by EPIU
Country Eligibility	1. Is the country party to the Kyoto Protocol?	Yes		
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes		

Project Eligibility	<p>1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?</p> <p>2. Does the project /</p>	<p>No. The letter of endorsement is not provided. Also, the name in Part IV, Section A, of the project template (the record of endorsement) is different from the name of the Designated Authority (DA) on record with the Adaptation Fund Board secretariat, and there is no accompanying letter of endorsement.</p> <p><b>CAR1:</b> Please submit a letter of endorsement signed by the Designated Authority (DA) to the Adaptation Fund. Please note that the DA the secretariat has on record is Mr. Aram Harutyunyan, Minister of Nature Protection.</p> <p>Should the DA have changed, please send the secretariat formal notification from the government of Armenia appointing the new DA. The notification should be made in writing and signed by either a Minister, or by an authority at cabinet level, or by the Ambassador of Armenia.</p> <p>You can find more information on the process of nomination of a Designated Authority for the Adaptation Fund in paragraphs 20-22 of the Fund's Operational Policies and Guidelines available on the following link:  <a href="https://www.adaptation-fund.org/wpcontent/uploads/2016/04/OPG-amended-in-March-2016.pdf">https://www.adaptation-fund.org/wpcontent/uploads/2016/04/OPG-amended-in-March-2016.pdf</a></p> <p>Unclear. The project seeks to reduce</p>	<p><b>CAR:1 Not addressed.</b> The letter of endorsement for the project has been completed by a different individual to the Designated Authority (DA) who is on record with the Adaptation Fund Board secretariat.</p> <p>Please clarify whether the DA has changed and if so, follow the procedure for appointment and notification for a new DA according the Fund's operational policies and guidelines.</p>	<p>The objective of the project is to reduce the climate risk</p>
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	<p>programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?</p>	<p>anthropogenic pressures on the Khosrov Forest State Reserve and Dilijan National Park ecosystems emanating from the two communities living adjacent the protected areas. While the project also seeks to “<i>produce a model for in situ conservation of globally important biodiversity</i>” (page 12) and at the same time “<i>put in place policies and regulatory frameworks that have been lacking in the area of ecosystem resilience under climate change conditions</i>”, the challenges facing the two protected areas seem to be from human caused stressors and it is not clear what the climate conditions are, that is, the role climate change and variability have contributed, or are currently contributing to these challenges. The proposal does not identify the specific climate change related threats and vulnerabilities faced at project sites. It is also not clear what prevailing socioeconomic conditions exist within the protected areas and within the two communities and what concrete activities will be implemented by the project to address current and future climate threats. Lastly, activities under component 4 seem to be split responsibilities under the project team and the implementing entity and in both cases there are management costs</p>	<p><b>CR1: Partially addressed.</b> Climate trends have been</p>	<p>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.</p>

		<p>and fees that are already set aside for the project.</p> <p><b>CR1:</b> Please describe the historic climate trends for the two protected areas and the adjacent communities to the protected areas (project area) have been, including the anticipated climate impacts and risks from continued climate change. Please also clarify how the climate trends and climate variability is related to the project problem.</p> <p><b>CR2:</b> Please also provide more specific information on the proposed beneficiary communities and what exactly the project will help them adapt to. It is difficult to discern whether this is a project to arrest biodiversity loss (see threats stated on p.4), build resilience of community agriculture, or both. The sub-component on “alternative heating system” does not appear to have context elsewhere in the document.</p>	<p>provided but it is unclear how they relate to the project problem. Please clarify how the projected changes in climate translate into vulnerability on the ground, and for whom or which elements?</p> <p><b>CR2: Not addressed:</b> It is still unclear whether this is a project to arrest biodiversity loss, build resilience of community agriculture, or both. Essentially, the concept needs to first provide information on, “climate vulnerability of what/who, to what?”, and then make the case for which adaptation measures are needed and how the project will deliver these. Additional information has been included on alternative heating and energy efficiency, but it is still unclear how they are related to the adaptation issues.</p> <p><b>CR3: Not addressed:</b> Please clarify for the project, and in particular for the planned capacity building aspects under component 1, what the</p>	<p>The sections describing Climate trends in the project area are given from page 11 to 16.</p> <p>Please see the revised text on the proposed beneficiary communities on pages 19-23</p>

	<p>3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?</p>	<p><b>CR3:</b> The project objectives and project components are mostly to do with capacity building and knowledge management. Please clarify the concrete adaptation activities and describe how project outputs are directly related to the activities and would result in tangible results, and increased resilience to climate change and variability for the communities and ecosystems in the project area.</p> <p><b>CR4:</b> Please justify why activities under Component 4 are not counted as part of the project execution costs or implementing entity fees.</p> <p>Unclear. As a general comment, the relevant sections of the project proposal template need to be filled properly. While the project objectives identify that the adaptability of the targeted natural ecosystems will be enhanced by strengthening the capacity of the Khosrov Forest State Reserve and Dilijan National Park communities, it is not clear what vulnerabilities exist within these communities. It is also not clear whether vulnerabilities are associated with a changing climate. Please also note that while the project assumes a positive relationship between reduced anthropogenic pressure on the</p>	<p>concrete outputs of the project are and what the planned activities linked to the outcomes are.</p> <p><b>CR4: Addressed.</b></p> <p>General comment still applies in the sense that without a clear understanding of the vulnerabilities that will be reduced through the proposed adaptation actions, it is not possible to determine the socioeconomic or environmental benefits.</p>	<p>Please see revised Component 1 and Component 2, pages 24-27.</p> <p>Please see the revised budget table on page 16.</p> <p>Please see the relevant sections of the project concept completed taking account the format provided in the project template, page 27, Section B.</p>
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	<p>protected areas and adaptability of the protected areas, this relationship might not be the case and would depend on the rate of climate change, frequency of weather extremes and other factors, despite little or no human interference with the natural systems. Please see CR 1, 2 and 3 above. Without a clear understanding of the climate change related threats to be addressed, and understanding of the vulnerabilities that will be reduced through the proposed adaptation actions, it is not possible to determine the socio-economic or environmental benefits.</p> <p><b>CR5:</b> Please complete the relevant sections of the proposal template, taking into account the instructions provided under Annex 5 of the Adaptation Fund Operational Policies and Guidelines. See: <a href="https://www.adaptationfund.org/wp-content/uploads/2016/04/OPGANNEX-5-_project-template_amended-in-Oct-2016.pdf">https://www.adaptationfund.org/wp-content/uploads/2016/04/OPGANNEX-5-_project-template_amended-in-Oct-2016.pdf</a></p>	<p><b>CR5: Not addressed.</b> The proposal does not follow the format provided in the project template and does not provide the content described in Part II of the proposal template. Please complete the relevant sections of the proposal template and refer to the instructions provided under Annex 5 of the Adaptation Fund Operational Policies and Guidelines available via the Fund’s website on: <a href="https://www.adaptation-fund.org/wpcontent/uploads/2016/04/OPGANNEX-5-_projecttemplate_amended-in-Oct-2016.pdf">https://www.adaptation-fund.org/wpcontent/uploads/2016/04/OPGANNEX-5-_projecttemplate_amended-in-Oct-2016.pdf</a>.</p> <p><b>CR6: Not addressed.</b> Without a clear description and articulation of the climate change adaptation impacts, the planned activities and the concrete project outputs, it is difficult to</p>	<p>The revised project concept adheres to the instructions provided under Annex 5, from page 27.</p>
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		<p><b>CR6:</b> Taking consideration of CR5 above, please provide a description of the socioeconomic and environmental benefits of the project</p> <p><b>CR7:</b> Please also briefly discuss gender considerations as they relate to this project and clarify whether a gender analysis will be undertaken for this project?</p>	<p>ascertain the socioeconomic and environmental benefits of the project. The project should consult the instructions provided under Annex 5 of the Adaptation Fund Operational Policies and Guidelines. See CR2, 3 and 5.</p> <p><b>CR7: Partially addressed.</b> While the activities of women in the communities have been described, it is unclear whether there are any existing vulnerabilities for women and if there are, whether it is intended that the project outputs and outcomes address these. See the Fund’s Gender Policy available in Annex 4 of the Adaptation Fund Operational Policies and Guidelines available: <a href="https://www.adaptationfund.org/documentspublications/operational-policiesguidelines/">https://www.adaptationfund.org/documentspublications/operational-policiesguidelines/</a></p>	<p>The revised project concept adheres to the instructions provided under Annex 5, from page 27.</p> <p>Gender considerations are taken into account; it is shown in Component 1 of the project concept for activities related to farmer field schools, and lecturer listener</p>
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				<p>and other training activities, as well as under Section B as one of the vulnerable groups benefiting from this programme, page 28.</p>
	<p>4. Is the project / programme cost effective?</p>	<p>No. The proposal should identify concrete adaptation options for the project.</p> <p><b>CR8:</b> Please provide a description of how the planned adaptation options compare to identified alternatives, that is, discuss the proposed adaptation solutions in contrast with alternative measures that could be taken to achieve the same objectives. In so doing, please consider CR2 and 3 above. Also note that specific calculations are not required at this</p>	<p><b>CR8: Not addressed.</b> Please complete the relevant sections of the proposal template and include a brief discussion of how the proposed adaptation solutions contrast with alternative measures that could be taken to achieve the same objectives. See CR5</p>	<p>Please see Section C, page 29</p>

		stage.		
	<p>5. Is the project / programme consistent with national or subnational sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?</p> <p>6. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund??</p>	<p>Yes. However, only the National Biodiversity Strategy Action Plan and the Strategy and national Action Programme to Combat Desertification are mentioned.</p> <p><b>CR9:</b> Please provide further information including but not limited to, the Third National Communication of the Republic of Armenia to the UNFCCC which identifies country priorities that are in alignment with the project, and any other national or subnational climate change related strategies, plans or assessments.</p> <p>Unclear. While the project intends to <i>put in place policies and regulatory frameworks</i> (page 13) it is not clear what those policies and regulatory frameworks are. Also, it is not clear what concrete project activities have been identified and whether it would be necessary for the activities to get authorization and/or licencing in line with domestic law. See CR2, 3 and 5 above.</p>	<b>CR9: Addressed.</b>	<p>Please see Section D, page 30</p> <p>Please see Section E, page 31</p>
	7. Is there	Not demonstrated. See CR 5.		Please see

	duplication of project / programme with other funding sources?			Section F, page 31
	8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	Yes. However, at the full proposal stage, further explanation should be given on the knowledge to be generated and how the knowledge will be managed, including the targeted audience and process of dissemination.		Please see the revised Section G, page 31
	9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	<p>No. The project proposal does not identify any stakeholders to be consulted nor mention any consultation that has taken place with project beneficiaries and other interested stakeholders regarding the project.</p> <p><b>CR10:</b> Please provide a description of the level and extent of initial stakeholder consultation that has taken place for the project and any other that is planned, including how stakeholder engagement will be ensured throughout project implementation. Also, please see CR5.</p>	<p><b>CR10: Not addressed.</b> Of the identified stakeholders, consultation is referenced to have taken place with community leaders. However, a description of the consultative process itself that was followed is unclear, and in particular with regards to vulnerable groups, and including gender considerations.</p> <p>Please clarify whether there has been initial consultation</p>	Please see the revised Section H, page 32

			with other identified stakeholders.	
	10. Is the requested financing justified on the basis of full cost of adaptation reasoning?	<p>Partially. While the concept presents a full cost of adaptation reasoning, it does not clarify the climate change related vulnerabilities that will be reduced, and how the proposed measures will serve to do so. See also CR2 and 3 above.</p> <p><b>CR11:</b> Please clarify how proposed activities are relevant in addressing the identified adaptation needs and how the project components put together will lead to achievement of the adaptation objectives of the project. Also, please see CR5.</p>	<p><b>CR11: Not addressed.</b> Please clarify how proposed activities are relevant in addressing the identified adaptation needs and how the project components put together will lead to achievement of the adaptation objectives of the project. Also, please see CR5</p>	<p>Please see the revised Section I, page 33</p> <p>The revised project concept adheres to the instructions provided under Annex 5, from page 24.</p>
	11. Is the project / program aligned with AF's results framework?	Yes		
	12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	Yes. However, see CR5. The concept has sub-components on capacity building, which, if effectively done, will contribute to sustainability. However further information is requested on stakeholder management, operations and maintenance of the on-the ground measures, long term viability of knowledge base, and mainstreaming adaptation in policy and planning.		<p>Please see the revised Section J, page 33</p> <p>The revised project concept adheres to the instructions provided under</p>

		<p>Further clarification is required at the full proposal stage. The project intends to build a sustainable base for fodder and does not however clarify what this will be or what would make it sustainable. It also intends to use experiences and lessons from the project to review current biodiversity strategies, to develop policies and regulatory frameworks, and establish groups of people with relevant knowledge for knowledge dissemination and continuity. In addition, the project will establish inter-agency collaboration, and collaboration with technical and educational institutions. At the full proposal stage, the proposal should: (i) Identify which government agencies and which technical and educational institutions it intends to collaborate with, including what role they will play. (ii) Clarify how the policies, governance arrangements, the knowledge generated and the built capacities from the project will be maintained beyond the life of the project, including identifying who would maintain the various aspects and where the funds for implementation will come from e.g for operation and maintenance of the planned community-to-community networks. (iii) Clarify how the knowledge base will be updated and managed after project completion</p>		<p>Annex 5, from page 24.</p>
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	<p>13. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?</p>	<p>Unclear. The description of the project activities needs clarification to allow for environmental and social risks identification.</p> <p><b>CR12:</b> Please note that the ESP also requires that projects be categorized according to their potential environmental and social impacts. Please provide an initial assessment of whether the project is expected to be Category A, B, or C in accordance with the Fund’s ESP, and accordingly, whether the project will develop a plan to manage potential risks.</p> <p><b>CR13:</b> Please describe the gender dynamics for the project and clarify gender considerations as they relate to the project in line with the Fund’s Gender Policy.</p>	<p><b>CR12: Not addressed.</b> Please consider CR2 and 3 above and subsequently provide an initial identification of environmental and social impacts and also provide an initial assessment of whether the project is expected to be Category A, B, or C in accordance with the Fund’s ESP.</p> <p><b>CR13: Partially addressed.</b> Please clarify whether there are any existing vulnerabilities for women and if there are, describe how the project outputs and outcomes would address these. See CR7</p>	<p>Please see Section K, page 34</p> <p>See our response for CR 7.</p>
Resource Availability	1. Is the requested project/ programme funding within the	Yes		Please see the revised section for <b>Project /</b>

	<p>cap of the country?</p> <p>2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?</p> <p>3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?</p>	<p>No fee has been charged.</p> <p><b>CR14:</b> Please confirm that no implementing entity fees will be requested by EPIU. Also, please see CR4.</p> <p>Yes. The fee is 7.8%</p>	<p><b>CR14: Partially addressed.</b> A fee of 9.2% has been included which is higher than the cap of 8.5%. Please revise the fee to fall within the cap.</p>	<p><b>Programme Components and Financing:</b> on page 16.</p>
Eligibility of IE	<p>4. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?</p>	<p>Yes. EPIU is an accredited national implementing entity.</p>		
Implementation Arrangements	<p>1. Is there adequate arrangement for</p>	<p>n/a (Not required at Project Concept stage).</p>		



	project / programme management, in compliance with the Gender Policy of the Fund?			
	2. Are there measures for financial and project/programme risk management?	n/a (Not required at Project Concept stage).		
	3. Are there measures in place for the management of environmental and social risks, in line with the Environmental and Social Policy and Gender Policy of the Fund?	n/a (Not required at Project Concept stage).		
	4. Is a budget on the Implementing Entity Management Fee use included?	n/a (Not required at Project Concept stage).		
	5. Is an explanation and a breakdown of the execution costs included?	n/a (Not required at Project Concept stage).		

	6. Is a detailed budget including budget notes included?	n/a (Not required at Project Concept stage).		
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	n/a (Not required at Project Concept stage).		
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	n/a (Not required at Project Concept stage).		
	9. Does the project/programme's results framework align with the AF's results framework?	n/a (Not required at Project Concept stage).		

	Does it include at least one core outcome indicator from the Fund's results framework?			
	10. Is a disbursement schedule timebound milestones included?	n/a (Not required at Project Concept stage).		
Technical Summary	<p>The proposed project aims to reduce anthropogenic pressure on the Khosrov Forest State Reserve and the Dilijan National Park by strengthening the capacities of communities living adjacent the two protected areas. Through this approach, which includes increasing the efficiency of management measures, the project intends to enhance the adaptability of natural ecosystems under climate conditions. However, as a general comment, the relevant sections of the project proposal template need to be filled properly. More specifically, the concept needs to provide more context on (i) beneficiary areas or communities, (ii) where the vulnerabilities to climate change lie, and (iii) how the proposed adaptation measures will serve to enhance climate resilience. More information is also requested on how the activities will be implemented, including a brief discussion on stakeholder engagement, sustainability and gender considerations.</p> <p>The initial technical review found that the proposal had not included a letter of endorsement by the Designated Authority (DA) to the Fund and had not followed the format provided in the project proposal template. A number of clarifications with significant consequences to the proposal were requested regarding the concrete activities, outputs and outcomes of the project, project context, initial stakeholder consultation, gender considerations, and the initial identification of environmental, social and gender risks including the subsequent categorization of the project in line with the Fund's environmental and social policy (ESP).</p> <p>The final technical review finds that the revised document has not adequately addressed a considerable number of the initial clarification requests. While the revised concept has reduced the project components from four contained in the initial proposal to two that are contained in the current document, the concept still needs to demonstrate the underlying adaptation reasoning of the project, and with that, provide a clearer description of whether the project is for protected natural ecosystems, agriculture ecosystems, or both, and also clearly outline what the concrete adaptation activities, concrete outputs and outcomes of the project are, as well as how they are related to each</p>			

	<p>other. The following observations are made, to be addressed by the proponent:</p> <p>(a) Please clarify whether the Designated Authority (DA) for the Adaptation Fund has changed and if so, follow the procedure for appointment and notification for a new DA according the Fund's operational policies and guidelines.</p> <p>(b) Please clarify for the project, and in particular for the capacity building aspects under component 1, what the concrete adaptation activities of the project are and how these activities are related to concrete outputs, including how they contribute to climate resilience.</p> <p>(c) Please complete the relevant sections of the proposal template, and refer to the instructions provided under Annex 5 of the Adaptation Fund Operational Policies and Guidelines.</p> <p>(d) Taking the Fund's Gender Policy into consideration, please clarify whether there are any existing vulnerabilities for women and if there are, whether it is intended that the project outputs and outcomes would address these.</p> <p>(e) Taking into consideration (b) and (c) above, please provide an initial identification of environmental and social impacts and also provide an initial assessment of whether the project is expected to be Category A, B, or C in accordance with the Fund's ESP.</p> <p>(f) Please revise the Implementing Entity Management Fee to fall within the cap approved by the Board.</p>
Date:	20 February 2017

Overall the project concept has been revised (some components have been deleted), consequently the names of the Components:

- 1. Component 1: Community capacity building to climate change conditions (including agriculture and livestock),**
- 2. Component 2: Raising public awareness and knowledge level on climate change and adaptation practices.**

Besides, initial project implementations arrangements have also been described under A. Describe the arrangements for project / programme implementation.



**ADAPTATION FUND**

**REQUEST FOR PROJECT/PROGRAMME  
FUNDING FROM THE ADAPTATION FUND**

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat  
1818 H Street NW  
MSN P4-400  
Washington, D.C., 20433  
U.S.A  
Fax: +1 (202) 522-3240/5  
Email: [afbsec@adaptation-fund.org](mailto:afbsec@adaptation-fund.org)



## ADAPTATION FUND

**PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND****PART I: PROJECT/PROGRAMME INFORMATION**

Project/Programme Category:	Regular project
Country/ies:	Armenia
Title of Project/Programme:	Sustainable management of adjacent ecosystems of specially protected nature areas of the RA and capacity building in communities
Type of Implementing Entity:	NIE
Implementing Entity:	“Environmental project implementation unit” SA
Executing Entity/ies:	Ministry of Nature Protection of RA
Amount of Financing Requested:	<b>2 506 000</b> (in U.S Dollars Equivalent)

**Project / Programme Background and Context:**

*Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.*

The Republic of Armenia is a mountainous, landlocked country neighboring Azerbaijan (East), Georgia (North), the Islamic Republic of Iran (South) and Turkey (West).

76.5% of its territory 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 is Mount Aragats with 4090 m. The average altitude of the territory is 1800m above sea level.

The country has an area of some 30,000 sq km, of which less than half is suitable for agriculture, and a population of 3.0 million.

The climate is continental, with hot summers and cold winters. Annual average precipitation varies from 200-600mm.

The existence of all ecosystems typical to Caucasus, except humid subtropical is due to country's location at the intersection of three biogeographical regions. 6 climatic types and 10 landscape zones are distinguished in the territory of the country due to complex terrain and sequencing of apical zones. Landscapes are mainly plateaus and mountain ranges separating narrow plains. The Republic of Armenia belongs to the catchment basin of Aras and Kura rivers.

Only 11.2% of the country's territory is covered with forests.

As a result, Armenia hosts exceptionally rich and globally significant biodiversity. Due to intensive nature use the level of anthropogenic changes of natural landscapes in Armenia is high. More than 55.6% of the territory is under active agriculture, of which arable lands make 27 %, in semi-desert and mountainous steppe zones the figure reaches up to 80-90%. Overexploitation has resulted in reduction and pollution of the territories covered by wild

biodiversity, loss of habitats of certain species and changes in the services provided by ecosystems.

The main factors contributing to loss of biodiversity that are directly or indirectly conditioned by anthropogenic influence are as follows:

- Reduction of habitats, natural populations and plant communities of crop wild relatives,
- Genetic erosion conditioned by introduction of new varieties as a result of the development of modern selection, as well as the illegal import of new crop varieties and hybrids,
- Disorganized gathering of medicinal, edible and decorative plants that leads to substantial reduction of natural supplies,
- Enlargement of the range of utilization of wild plant species for food and medicine and the scale of their trade and use as a result of higher market demand,
- Deterioration of natural grasslands as a result of continuous and intensive use.

Notably protected natural areas are considered as significant centers ensuring the biosphere's environmental sustainability. Currently 3 reserves, 4 national parks and 27 sanctuaries (SPANs) have been established in the Republic of Armenia restricting the use of natural resources by the residents of surrounding communities. **Residents of communities living near specially protected natural areas have limited possibilities to use of land and water resources, and as a result anthropogenic and natural pressure to natural ecosystems near communities significantly increases (forests, pastures and grasslands, water areas, etc.).** Under these conditions, degradation of natural ecosystems adjacent to communities and they gradually lose adaptation to climate change. On the other hand under climate change conditions (Increase of temperature, decrease of precipitation, increase of temperature and heat waves, flood and hail frequency and so on) the production of agricultural products is reduced. Indeed Armenia is affected by the compounding effects climate change and land degradation and the detrimental effects on livelihoods and local economies.

This has in return significantly effects on the population's living standards. Reduction in incomes from agriculture and cattle breeding does not allow part of the residents to use enough gas and electricity for household needs. Wood and dried manure is used as a fuel. Under these conditions there are 2 main negative results.

1. The pressure on the forest ecosystem increases, as a result of which the climatic and water absorbing properties of the forest decrease. As a result of felling clearings, light forests, not valuable shrubs non-specific to ecosystem emerge where the sprouting of seeds of special tree species and the development of the new forest are worsening. The ecosystem is gradually weakening and losing its adaptive capacity to climate change.

2. The use of organic fertilizers in agriculture decreases. Gradually, the quality of soil degrades and often they are out of cultivation, turning into semi-desert or very sparse grasslands.

Community self-governing bodies are unable to provide adequate financial resources to implement energy efficiency and product volume increase measures aimed at enhancing the stability of natural ecosystems and agricultural landscapes (solar water heaters installation, construction of modern greenhouses with lightweight constructions of fruit and vegetable seedlings, solar water heaters, etc.) and increase of product volumes ( irrigation system repairs, diversification of agriculture, reconstruction of waterway roads, construction of watering points in pastures, etc.). These and other similar measures will create alternative

opportunities for residents and local governments to reduce their pressure on natural ecosystems and can be adapted to climate change more efficiently. From this perspective there is a necessity to increase adaptation potential applying new methods of agriculture/Smart Agriculture/, as well as to increase ecosystem sustainable development and infrastructures of rural communities, reduce soil erosion due to increased water flow speeds.

At the same time there are few conflicts between the two protected areas situated in the impact zone of the community (illegal logging, grazing, gathering of useful plants), which is mainly due to the high levels of poverty and low level of knowledge on the values of protected areas.

As a result of this and other actions prohibited by the law degradation of vegetative cover is caused which results in the decrease of ecosystem resilience to climate change. Since the specially protected nature areas are important areas for enhancing ecosystem and landscape resilience to climate change and have environmental, social, health and great scientific value, the establishment of effective cooperation and further development between the communities and organizations implementing protected area management is highlighted and will increase the adaptation level of protected natural ecosystems.

At the same time it is clear that it is not possible to enhance efficiency of specially protected nature areas without improving social conditions of communities' population and implementation of operations on increasing community awareness on the importance of protected areas. Communities must be considered not as impeding but contributing factors to protected area. Within the frames of the project relevant trainings will be developed which will be addressed to the clarification and mitigation of the conflict between the community and the protected area, as well as to the formation of a stable perception on the importance of the value protected areas among the population.

Land degradation and the concept of land degradation neutrality

As indicated above land degradation, the depletion of soil resources, forests, rangeland and water resources, is a substantial threat to the sustainable development of Armenia and severely impacts lives and livelihoods as well as local economies in the affected area. Land degradation and the diminishing capacity of agro-ecological systems to adapt to climate change are closely related. The "National Strategy and Action Program to Combat Desertification in the Republic of Armenia" (2015) recognizes two desertification factors: natural and anthropogenic. Natural factors include: droughts that are frequent at 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; Geomorphological features; Landslide processes; Floods; Naturally occurring salinization. Anthropogenic factors include: Urban development; Agriculture practices related to the violation of ploughing rules, absence or inappropriate application of crop rotation techniques, ineffective use of irrigation water and nutrients, overgrazing of pastures; Road construction; Illegal logging; Mining, especially with open-pit method; Abuse of artesian water resources; Soil contamination. Nearly half of the cropland and forest land are affected by water erosion (220,000ha and 186200 ha respectively), while approximately 170,000 ha are affected by overgrazing. The hotspots of land degradation in Armenia are indeed those areas the proposed project is targeting, calling for a joint approach for addressing land degradation and land based adaptation to climate change.

The United Nations Convention to Combat Desertification (UNCCD) defines land degradation neutrality as: "a state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remain stable or increase within



specified temporal and spatial scales and ecosystems”.<sup>1</sup> 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 km<sup>2</sup> are required with an investment need of US\$ 210 million until 2040.

- Afforestation, reforestation and improving of forest stands
- Elaboration of new grazing norms and management plans for pastures
- Adoption new strategy for agriculture development and elaboration and implementation projects for modern technologies using
- Afforestation of bar lands

During the implementation the project would therefore focus on four main areas of intervention: (i) Adaptation of agro-ecological landscapes, (ii) maintaining agricultural productivity under increasing climate change, (iii) promotion of low cost, energy saving technologies and (iv) Improved planning capacity of local communities and reinforcing their local adaptive capacities. The project would thereby also be an important building block toward land degradation neutrality.

i. To address these problems, the adaptation challenge of the project will focus on the improvement of degraded community adjacent pastures and hayfields, creation of a sustainable base for fodder, agricultural crop diversification, creation of opportunities for agricultural products processing (fruits, berries, vegetables, herbs, etc. ), introduction of alternative heating system, recovery of degraded community areas and infrastructure (irrigation water management/recovery of irrigation system, introduction of drip irrigation system, construction of watering points in pastures (Midfield roads leading to the pastures and meadows) will be carried out.

ii. At the same time, the project will strengthen the agricultural sector and focus on maintaining and securing agricultural production in the project area. The implementation, improvement and refinement of sustainable land management practices. This will be important for Armenia’s food security agenda implementation, improvement and refinement of sustainable land management practices. Sustainable agro ecosystem land management practices including the establishment of seed banks for the long-term storage of agricultural seeds, improved livestock forage quality, and agroforestry practices are crucial. This will be combined with the promotion and demonstration of sustainable water resources and irrigation management as well as land rehabilitation measures in the project areas.

iii. In addition, there is a great adaptation potential that allows enhancing the productivity and efficiency in managing the services of productive ecosystems and reducing risks and/or losses. These enhancements will be achieved by implementing activities aimed at generating, sharing and adopting technical options that reduce the vulnerability of productive units and strengthen the response to climate change. The aim is to reduce the vulnerability through sustainable and low-cost production technical options, and their validation at field level. In this way, it is

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<sup>1</sup> UNCCD. 2016. Report of the Conference of the Parties on its twelfth session, held in Ankara from 12 to 23 October 2015. Part two: Actions. ICCD/COP(12)/20/Add.1. United Nations Convention to Combat Desertification (UNCCD), Bonn. See Decision 3/COP.12, page 8: Integration of the Sustainable Development Goals and targets into the implementation of the United Nations Convention to Combat Desertification and the Intergovernmental Working Group report on land degradation neutrality. Parties of the UNCCD recognize that for the purpose of this Convention, this definition is intended to apply to affected areas as defined in the text of the Convention.

expected that, through the adaptation fund, the adoption of this type of technical options in the selected vulnerable areas is achieved and therefore risks are reduced.

iv. Local capacity building (authorities, farmer associations, civil society organizations, and the private sector) in climate risk management, climate smart agriculture, through community based adaptation and empowerment of local producers, to increase their capacity to deal effectively with the impacts of climate change and land degradation will therefore be of particular importance. Particular importance will be attached to the institutional capacity development of communities, dissemination and best practices and increased planning capacity. It is planned to create union of stakeholders in the communities, which will be responsible for the use, maintenance and continuity of the project outcomes. Management plans will be developed for each community on a participatory management basis, which will reflect planned activities and implementation schedule.

### ***Climate Change Observed in Armenia***

#### ***Trends in ambient air temperature and precipitation changes***

Changes in annual ambient temperature and precipitation in Armenia have been assessed for various time periods; the results were used in preparations for FNC and SNC. These results show that, in recent decades, there has been a significant temperature increase (see table 5-1 and figure 5-1). In the period of 1929-1996, the annual mean temperature increased by 0.4°C; in 1929-2007 by 0.85°C; in 1929-2012 by 1.03°C.

**Table 5-1. Annual mean temperature and precipitation changes in 1929-2012 changes relative to the 1961-1990 average**

Time period	Air temperature, °C	Time period	Precipitation, mm(%)
1929-1996	+0.4	1935-1996	-35(-6)
1929-2007	+0.85	1935-2007	-41 (-7)
1929-2012	+1.03	1935-2012	-59 (-10)

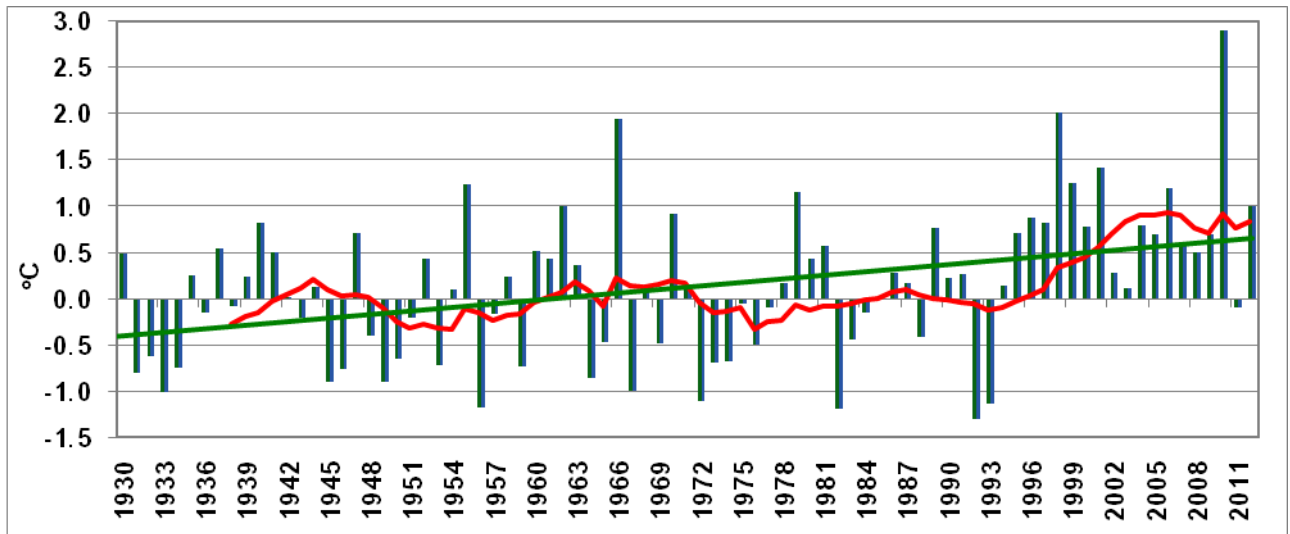
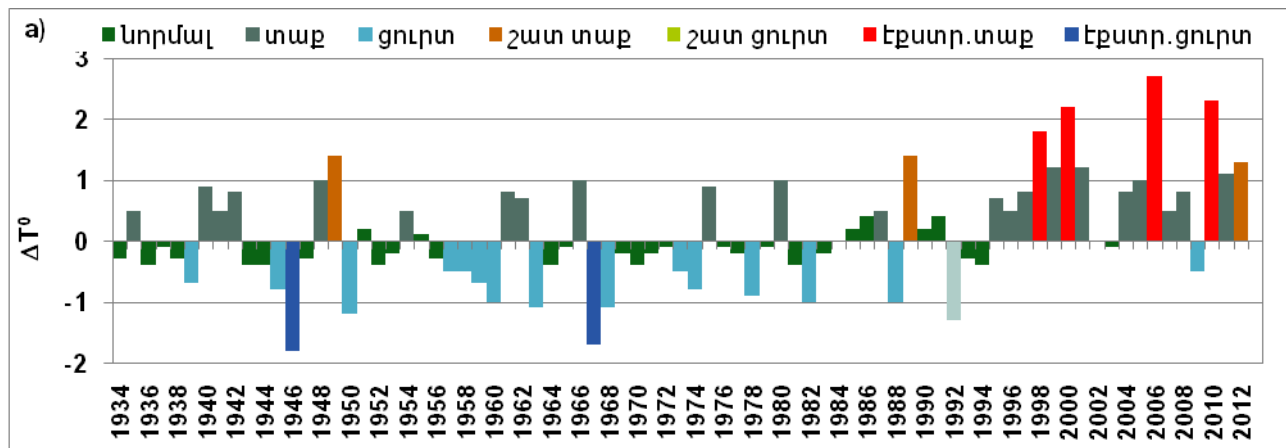


Figure 5-1. Deviations of average annual air temperature in the territory of Armenia from the average values for 1961-1990

On 31 July 2011 the absolute maximum temperature 43.7°C for the whole period of observations in Armenia was recorded in Meghri region, which exceeded the previous record by 0.7°C. Over various seasons of the year ambient air temperature changes exhibit different trends. In 1935-2011 the summer average temperature increased by about 1.1°C, and extremely hot summers have been observed over the last 17 years (1998, 2000, 2006, 2010) (see figure 5-2a). Winter temperature changes look different: seasonal mean temperature increases are insignificant at 0.4°C (see figure 5-2b).



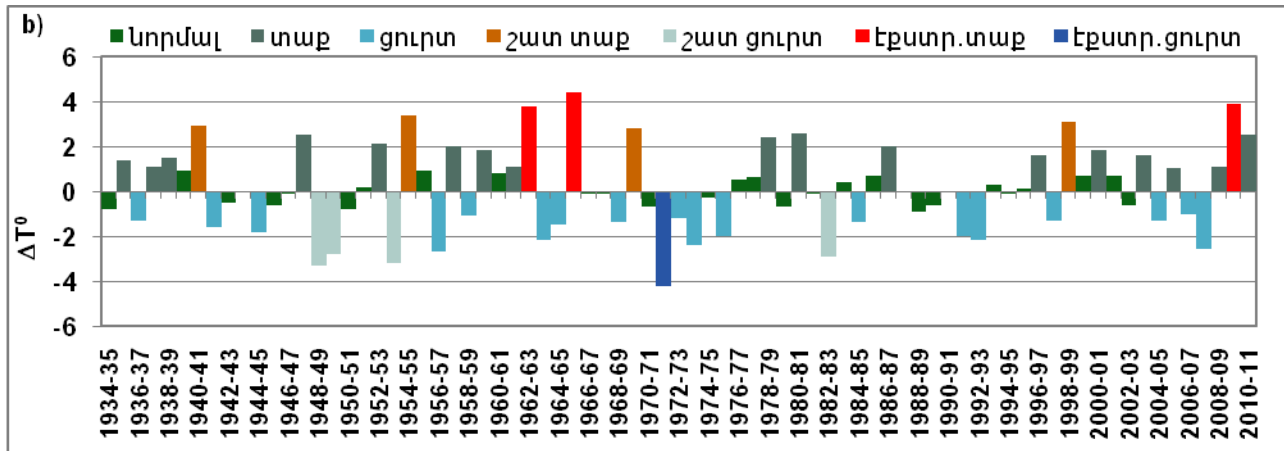


Figure 5-2. Deviation of summer (a) and winter (b) temperatures in the territory of Armenia in 1935-2012 from the average values for 1961-1990

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 (see figure 5-3).

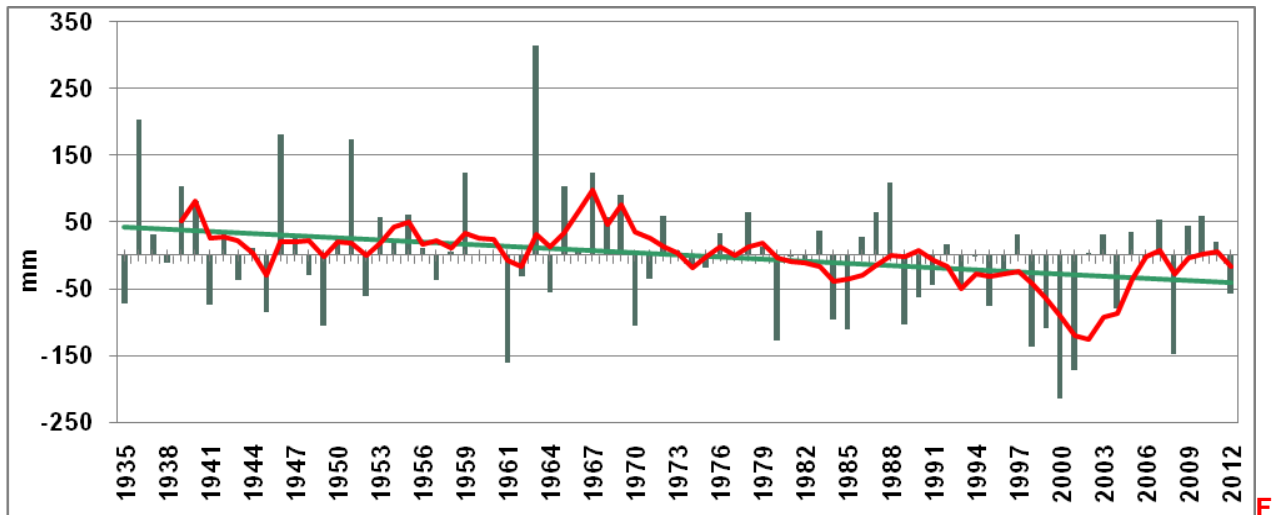


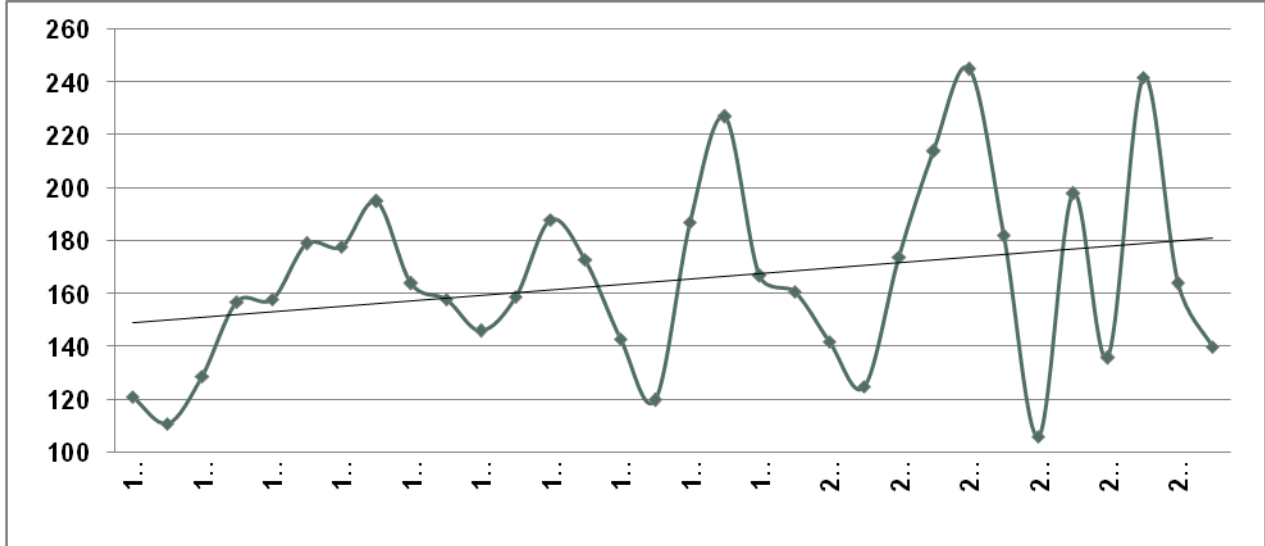
Figure 5-3. Deviation of annual average precipitation in the territory of Armenia from the average of 1961 -1990

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.

**Hazardous hydrometeorological phenomena**

In recent decades, climate change has significantly increased the frequency and intensity of natural disasters both in Armenia and globally. The marginal values so far recognized characterizing these phenomena have also changed. Damage caused by hazardous hydrometeorological phenomena to the economy and to human life has increased. Extreme events (hail, frost, strong winds, heavy rainfall, floods, droughts, heat waves) may be contributing to the generation of natural calamities (or their escalation), such as landslides, avalanches, mudflows, forest wildfires, rock-falls, outbreaks of infectious diseases, etc.

To reveal trends in extreme hydrometeorological events the dynamics of phenomena most frequently observed in Armenia from 1980-2012 were analyzed, including: frost, hail, strong winds, and heavy precipitation. The maximum aggregate number of 245 hazardous events was observed in 2004; the minimum number of 106 events in 2006. The amount of hail was greatest in Shirak valley; heavy precipitation was most common in Tashir and Ijevan regions; more frost events were observed in Ararat Valley and pre-mountainous regions.



**Figure 5-4. Number of extreme hydrometeorological events (frost, hail, heavy rainfall and strong winds) observed in the territory of Armenia in 1980-2012**

The analysis showed that:

- The number of frost events has increased significantly, which may have the following explanation: the annual mean temperature increase in Ararat Valley mostly occurs in March, which triggers the earlier start of vegetation; the sharp temperature fall in April consequently increases the frequency of frost events;
- The number of days with heavy precipitation and hail has increased. This is due to the higher frequency of penetration of high cyclones generating heavy rain and hail clouds.

### Climate Change Projections

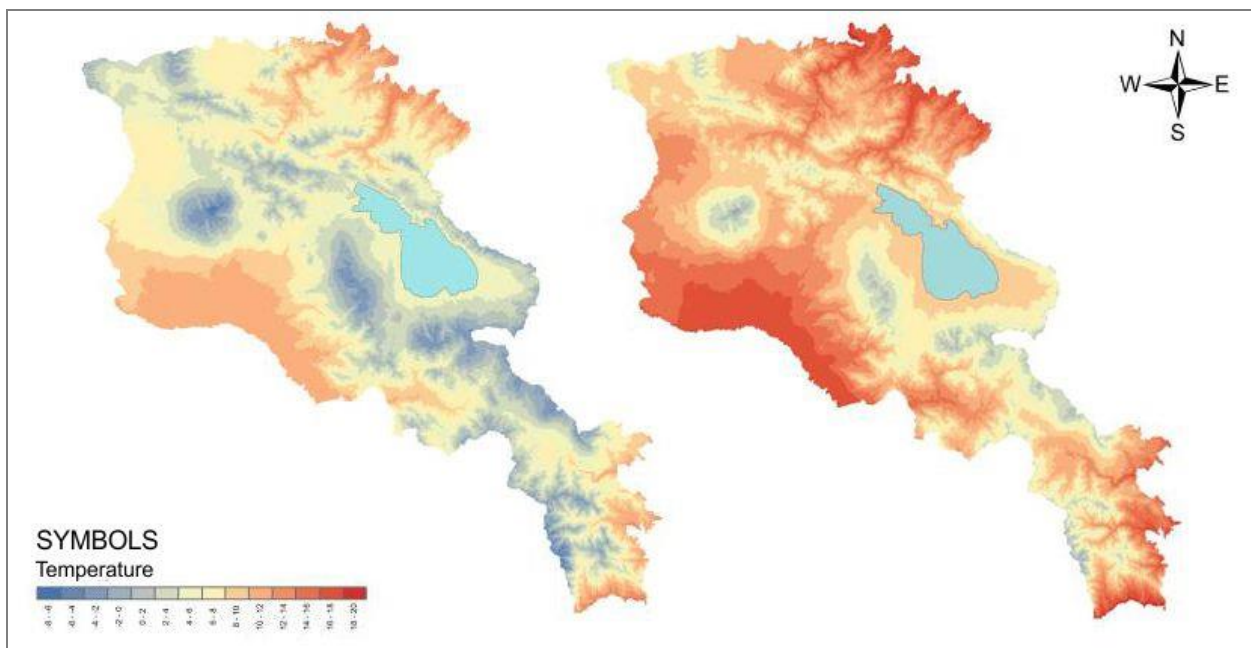
Climate change in Armenia is assessed using the CCSM4 model in accordance with the IPCC recommended RCP8.5 and RCP6.0 scenarios for CO<sub>2</sub> emissions. Therefore, as per the RCP6.0 scenario (equivalent to the SRES B2 scenario) CO<sub>2</sub> concentration will be 670ppm by 2100 and it will be 936ppm according to the RCP8.5 scenario (equivalent to the SRES A2 scenario). Future change forecasts for ambient air temperature and rainfall have been developed up until 2100. The results indicate that the temperature will continue to increase in all seasons of the year (see table 5-2). However, according to the RCP8.5 scenario, starting from the mid-21<sup>st</sup> century (2041-2100) the temperature will rise at a more rapid rate. According to the RCP8.5 scenario, it is very likely that, by 2100, the average annual temperature in Armenia will be 10.2°C, which exceeds the baseline (1961-1990) by 4.7 °C.

**Table 5-2. Projected changes in annual and seasonal average temperatures in the territory of Armenia compared to the average for 1961-1990, °C**

Seasons	1961-1990 average	Scenarios	2011-2040	2041-2070	2071-2100

Seasons	1961-1990 average	Scenarios	2011-2040	2041-2070	2071-2100
Winter	-5.3	RCP, 6.0	1.4	2.6	3.6
		RCP, 8.5	1.7	2.8	4.4
Spring	4.3	RCP, 6.0	1.3	2.4	2.7
		RCP, 8.5	1.4	2.7	3.9
Summer	15.7	RCP, 6.0	1.9	3.0	3.8
		RCP, 8.5	2.1	4.0	6.0
Autumn	7.2	RCP, 6.0	0.8	2.3	3.0
		RCP, 8.5	1.4	3.2	4.4
Year	5.5	RCP, 6.0	1.3	2.6	3.3
		RCP, 8.5	1.7	3.2	4.7

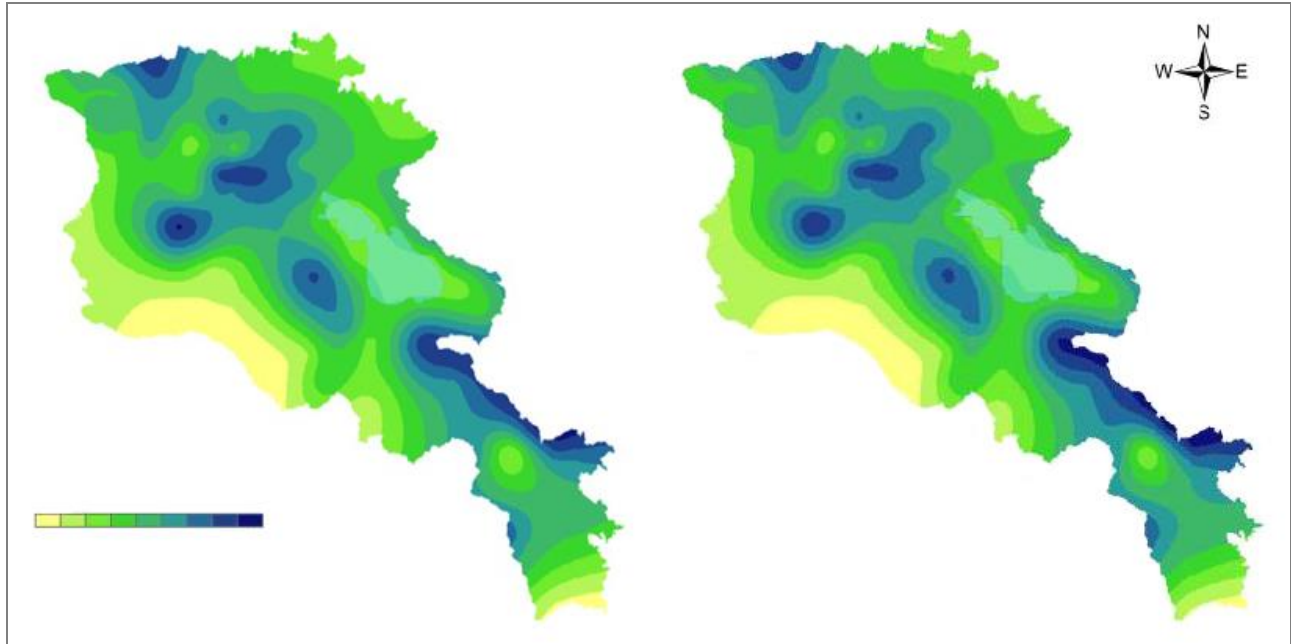
Figure 5-5 presents spatial distribution maps for annual mean temperature for the 1961-1990 baseline, and projections for 2071-2100. It is expected that, by 2100, temperatures will increase in most regions of Armenia. Increased temperature in mountainous regions demonstrates an apparent retreat in negative temperatures (blue-coloured areas, see figure 5-5b). For instance, 2100 annual mean negative temperatures will be maintained only in the highlands of Aragats, Geghama, and the Zangezur mountains. In general, seasonal and annual temperature and precipitation change trends are similar. It should be noted that maximum temperature growth is observed during the summer.



**Figure 5-5. Distribution of annual average temperature in Armenia in (a) 1961-1990 and (b) projections for 2071-2100, RCP 8.5 scenario**

Evaluation results for precipitation change show that, according to the RCP8.5 scenario, there might be 16.3% increase in annual precipitation in Armenia by the mid-21<sup>st</sup> century. There will be no changes in precipitation according to the RCP6.0 scenario. However, according to both scenarios for the summer months there is an expected significant decrease in precipitation in all 3 periods: in 2011-2040 summer precipitation is expected to decrease by about 23% compared to the baseline (1961-1990) period.

The distribution of annual precipitation amount seen in Armenia will not undergo significant change; however, in pre-mountainous and mountainous regions there will be a slight increase by the mid- 21<sup>st</sup> century.



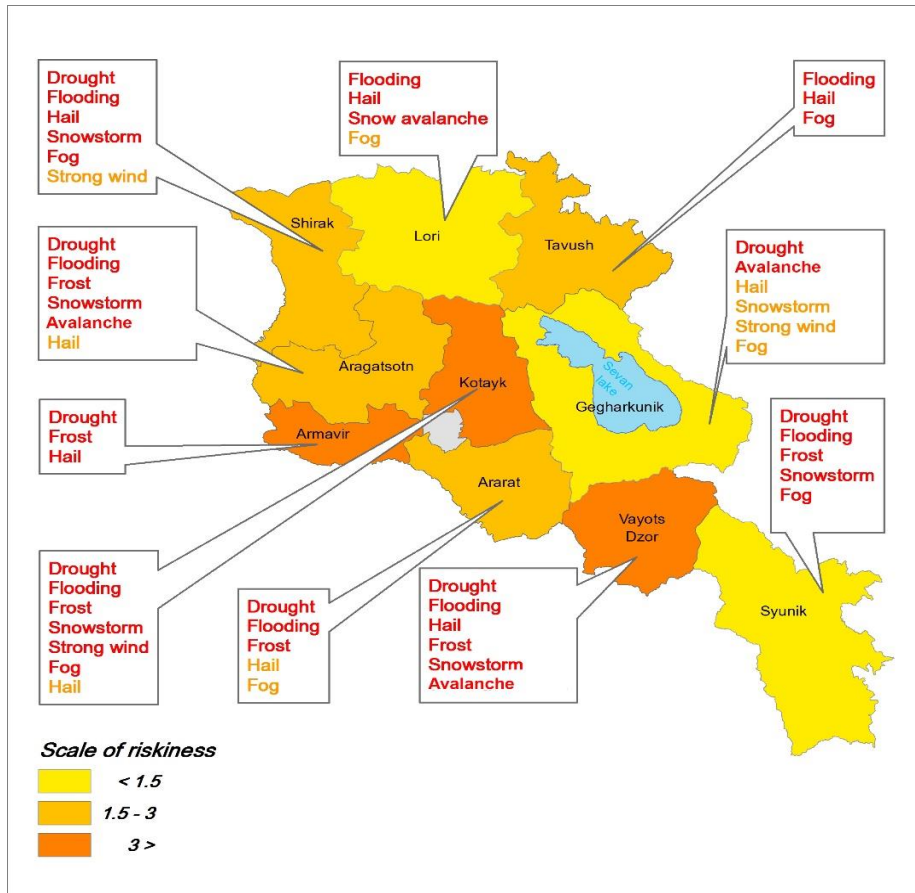
**Distribution of annual average precipitation (mm) in Armenia in (a) 1961-1990 and (b) projections for 2071-2100, RCP 8.5 scenario**

Summers in most of the regions of the country are usually characterized by hot and dry weather conditions. According to the model projections, these conditions will worsen, leading to a variety of problems in water resources, agriculture, energy, healthcare and other sectors.

Although the results of the CCSM4 model reproduce changes in temperature fairly well, there are large uncertainties in terms of precipitation. Additionally, the resolution of the model for the mountainous terrain of Armenia is insufficient.

### ***Hrazdan, Azat, Vedi River Basins***

Climate change impacts on river flows vary for different river basins. For instance, it is projected that, by 2040, there will be a 2-3% increase in annual river flow in the Azat and Vedi River basins, while in upper streams of the Hrazdan river there will be a reduction of 2-3% (A2). In 2041-2070 there is a projected decrease in river flows for all three river basins: 3-4% in 2070 in the Azat and Vedi river basins, and 6-7% in the Hrazdan river basin; in 2100 the projected decrease will reach to 12-14% and 15-20% respectively.



**Figure 5-11. Vulnerability of Armenian marzes to hazardous hydrometeorological phenomena**

Source: Hydromet Service

## Summary

The given analyses shows that after 1994 the air temperature fluctuations in the country were only positive due to which tendencies of intensification and frequency increase of dangerous hydrometeorological phenomena are observed. During 30 years the total number of these cases has increased by 1.2 cases per year, and in the last 20 years - 2.1 cases a year. Climate hazards are mainly expressed as floods, droughts, landslides, hail, spring and autumn frostbite. At the same time, there is a gradual increase in flood and their consequences. 1994-2007 the economic damage of the floods was 41 million US dollars, with more than 25 percent of which is in Tavush and Ararat regions.

In Armenia hydro meteorological service information management is carried out by Hydrometeorological Service of the Ministry of Emergency situations of the Republic of Armenia, which carries out systematic observations of 47 meteorological stations, including 3 professional and 34 agro-meteorological, 94 hydrological stations in 7 river basins (including 4 lake and 4 reservoir sites).

Climate change in Armenia was estimated by the use of PRECIS, a regional climate modelling system. According to it the annual temperature in Armenia is expected to increase by 1 °C in 2030, 2 °C in 2070, while in 2100 by 4°C, as well as a decrease in atmospheric precipitation, respectively 3%, 6% and 9%.



Climate change already affects some or all of Armenia's economy sector:

**Agriculture:**

Climate change may lead to following for Armenia's agriculture:

- Shift of agro-climatic zones,
- Reduction of crop yields (as a result of increasing temperature, reducing precipitation and increasing soil evaporation)
- Agricultural land degradation and efficiency reduction,
- Expansion of irrigated land zones and increasing the need for additional irrigation water
- Pasture and grassland degradation strengthening
- Soil salinity, alkalinity, overhydration, erosion and mudflow phenomena intensification

**Forestry:**

The current surface area of Armenia's forest areas is 457.5 thousand square meters ha, including the forest cover - almost 350.0 thousand ha. During 1990-2005 Armenia has lost 20% of its forest surface. In case of projected climate change scenarios the lower mountain belt forests (550-1200m) will be most vulnerable, where the conditions for forest growth will be sharply worsened. According to expert assessments (without adaptation measures), about 17,000 ha forests will disappear.

Based on the biological peculiarities of leaf-eating insects, it can be assumed that the massive development of the area will be expanded by more than 2-fold and will reach 70-75 thousand ha. Increase in forest fire intensity is also expected.

**Natural ecosystems**

Boundaries of landscape zones are predicted to shift upward mountainous profile 200-300m. The surface of the desert-semi-desert belt will expand by 33%, and the surface of the steppe zone by 4%. The surface of subalpine belt will be reduced by 21%, while the alpine belt by 22%. In case of increasing temperature and falling precipitation projections, desertification processes are expected to accelerate. The total area of the pastures and their yield will be reduced by 4-10%, including the most valuable and yielding pasture areas of the subalpine and alpine zones by 19-22%. Mountainous crop yield will be decreased by 7-10%. In this regard, it is expected that the livestock will be reduced by 30% and cattle breeding -by 28-33%.

**Healthcare**

Higher temperatures and the penetration of hot currents can contribute to the deterioration of people's health, especially among adults and children. Because of the direct impact of climate change (heat waves, thermal islands), the rate of increase in cardiovascular diseases will rise, as well as the effects of floods, mudflows and landslides on humans.

Indirect effects will be expressed by the increase in epidemic and seasonal infections, as well as by the increase in the frequency and spread of diseases associated with inadequate supply of clean water and food safety.

Since 1994 a trend of frequent imported malaria cases is observed. In Armenia from 1998-2001 due to high summer temperatures the largest number of malaria cases was recorded. Currently, malaria is prevented by low temperatures in the middle mountain belts, but in the case of climate change scenarios, its vertical distribution will take place.

Raising temperatures and prolonging of warm and hot periods will also contribute to the spread and increase in intestinal infections.

### **Agro and natural landscape desertification**

In the territory of the country there are 640 sections of degraded land, totaling 7530 hectares, of which 3780 hectares are agricultural land. Overall, 81.9% of the republic is subject to different degrees of desertification. It should be noted that 50% of the country's land is eroded, landslides and mudflow phenomena are observed in 60%, 40% are rocky areas, saline lands are about 30.0 thousand ha, man-made polluted soils are more than 90 thousand ha. In the majority of man-made contaminated soil, the content of the general and movable forms of some heavy metals exceeds the norm by 5.3-69.2 and the humus content has decreased by 2.5-3.8 times in the upper layer of soil (0-20 cm). Soil reaction has become weak acid (pH-4.3-6.0) from neutral and weak ground (pH-6.9-7.6). Instead of natural phytocenosis a modern "technogenic" flora emerges around industrial enterprises restricted to 2 or 3 species, and frequently monocenoses are formed.

### **Disaster Risk Reduction**

The World Bank ranks Armenia among the world's 60 most disaster prone countries and there are serious problems in implementing disaster risk reduction processes. At the local level there are no major regulatory mechanisms and a common risk assessment methodology. No community funding is provided for disaster risk reduction. Practices of community involvement in disaster risk management practices are almost lacking.

### **Climate Risk Management and Disaster Risk Reduction**

Climate change in Armenia today is not only an environmental issue, but also has a great impact on various sectors of the economy. That is why the assessment of climate change impacts on the economy and ecosystems has become a topical issue and elaboration of adaptation programs to address these changes. Taking into consideration the recent increase in the number and intensity of hazardous consequences due to climate change, there is a need to find new solutions and approaches to the climate change issues. For climate risk management it is necessary to implement existing and anticipated risk assessment and integration of results into country development programs, policies and strategic documents. Such an approach will help reduce the vulnerability of different sectors of the economy and increase adaptability to the adverse impacts of climate change. Such an approach will help reduce the vulnerability of different sectors of the economy and increase adaptability to the adverse impacts of climate change.

### **Climate change projection in the communities of the project area**

#### **1. Urtsadzor community**

The community is located in the foothills of the western part of Ararat valley. 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. 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.

From 1935 to 1996 average annual temperature increased by 0.40C, from 1935 to 2007 0.85 0C, from 1935 to 2016- 1,030C. Whereas in 1935-2016, the average summer temperature

rose to around 1.10C and the winter was 0.40C. From 1935 to 1996 6% of the average annual precipitation was recorded, and by 10% in 1935-2016.

The average cost of penetrating South Cyclones has increased by 24%, due to which the number of days with intense precipitation has increased throughout the area. The number of cases of thermal depression has increased by 107%, so the frequency of recurrence of summer with high thermal background and scarce precipitation has increased. Late spring and early autumn frosts, strong frosts observed in winter and strong winds are mainly due to Scandinavian anticyclone, the frequency of which has increased by 71%, which indicates that the repeatability of hazardous meteorological phenomena also increases in the area. The number of cases of Iranian anticyclone formation has increased by about 63% in the area. As a result heat wave repeatability increased. The number of days of feebly marked field of constant pressure, which does not lead to the emergence of dangerous meteorological phenomena, decreased by 26%. As a result of frequency of high-up cyclonic penetration the number of hail days has increased. The average number of dry days following each other has increased by 5 and makes 53 days.

## **2. Dilijan community**

The community is located in the south-western part of Tavush Marz. The climate is moderately warm and humid. 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. 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.

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. 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.

From 1935 to 1996 the average annual temperature has increased by 0.30C, from 1935 to 2007 - 0.650C, during 1935-2016 - 0.950C. Whereas in 1935-2016, the average summer temperature has risen to around 0.850C, and the winter temperature - 0.20C. In 1935-1996 the average annual precipitation has decreased by 5%, and from 1935 to 2016 about 9%.

The average cost of penetrating South Cyclones has increased by 14%, due to which the number of days with intense precipitation has increased in the area. The number of cases of thermal depression has increased by 15%, as a result of which the recurrence of summer with a high thermal background and scarce precipitation has become more frequent. Late spring and early autumn frosts, strong winter frosts, strong winds are mainly due to Scandinavian anticyclone, whose frequency has increased by 31%, which indicates that there is a certain increase in the area's repeated meteorological phenomena. The number of cases of formation of Iranian anticyclone has grown by 33% in the area, as a result of which the repeatability of heat waves has increased. The number of weak pressure field days that does not result in a hazardous meteorological phenomenon has decreased by 16% in the area. High-escalating penetration of cyclones has increased the number of hail days. The average number of dry days following each other has increased by 3 and is 21 days.

During project concept development phase some data have been collected by us from project impact zone which gives some idea on social and demographic state of communities' population (see tables on pages 21-24).

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. Based on community social and demographic situation and the preliminary consultations with community leaders, we have created a chain of activities each link of which will solve important social and environmental issue. The project highlights energy saving activities enabling communities to direct the saved funds to ensure the continuity of the project results. For this purpose it is envisaged to install solar water heaters in public sector(kindergartens, medical centers) which will save will save a large amount of electricity which paid from the community budget. This event will also improve working conditions of public sector employees serving as a good example for the population to acquire solar water heaters for their own.

Improvement of degraded community adjacent pastures and hayfields, creation of a sustainable base for fodder, agricultural crop diversification, creation of opportunities for agricultural products processing (fruits, berries, vegetables, herbs, etc.), introduction of alternative heating system, recovery of degraded community areas and infrastructure (Midfield roads leading to the pastures and meadows) all these activities are interrelated and contribute to the improvement of the social, living and health conditions of the population. They will create the opportunity both to restore natural ecosystems, as well as to reduce the pressure on protected areas. Regulated and economical use of ecosystems will create conditions for increasing their resilience and adaptation to climate change.

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:

- 1. Adaptation level of degraded natural ecosystems could be raised by restoring their integrity,*
- 2. The level of adaptation of natural ecosystems can be increased by reducing anthropogenic pressure on them,*
- 3. The level of adaptation of natural ecosystems can be increased by their proper exploitation and conservation,*
- 4. The level of adaptation of agricultural landscapes can be increased through efficient irrigation water management and the introduction of the latest technologies in agriculture,*
- 5. 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,*
- 6. Increasing the effectiveness of the conservation of specially protected natural areas is possible by improving the socio-economic situation of the adjacent communities.*
- 7. The adaptation of ecosystems and agricultural landscapes to climate change contributes to multiple benefits, including its commitment to land degradation neutrality.*

Similar programs implemented both in Armenia and in other countries were studied. Our consultations with community leaders mentioned those main activities that under climate change conditions can contribute to ecosystem resilience. Naturally, the program cannot solve all the problems, but these measures can significantly reduce the anthropogenic pressure on protected areas and natural ecosystems adjacent to communities.

The impact zone of the project -Tavush marz- is rich in forests, while Ararat marz in steppe soils and orchards. Preliminary discussions revealed a number of issues(such as high level of degradation of community adjacent pastures and hay meadows, difficult accessibility, Lack of use of energy efficiency and alternative means in public sector, highly insufficient level of

processing wild and agricultural crops, low level of knowledge on the importance of ecosystem resilience to climate change, on the values of specially protected nature areas and their conservation) whose solution will contribute to enhancing the overall sustainability and adaptability of ecosystems.

Summarizing the results of studies and proposals from communities the program has focused on the main activities that the majority of the population believes can contribute to achieving the program objectives. Clearly, during the concept development phase it was impossible to calculate and discuss all alternative measures that would contribute to the conservation of project's outcomes.

The project will focus on developing a broader spectrum of actions as a number of professionals of the sector will be involved in this stage. It is expected that there will be new more effective proposals, as well as innovative changes for already proposed actions.

### **Project / Programme Objectives:**

*List the main objectives of the project/programme.*

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.

### **Project / Programme Components and Financing:**

*Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.*

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
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<p><b>1. Component 1 Community capacity building to climate change conditions (including agriculture and livestock)</b></p>	<p>Output 1.1.1 Capacity of local community for building climate resilience increased, including capacity to plan, implement and maintain farming interventions</p> <p>Output 1.1.2 Local community livelihoods enhanced and diversified through sustainable development of community pastures and hay meadows and the promotion of sustainable alternative livelihood strategies</p> <p>Output 1.1.3 Increased level of adaptation of natural and agricultural ecosystems</p> <p>Output 1.1.4 Decreased pressure on ecosystems and protected area by adjacent communities, reduction of land degradation and contribution to Land Degradation Neutrality (LDN)</p> <p>Output 1.1.5 Infrastructures improved</p>	<p><b>Outcome1.1 Strengthened farming productivity in response to climate change, through the reduction of soil losses and improved irrigation water management</b></p>	<p><b>1 910 000</b></p>
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	<p>Output 1.2.1            Demonstration of modern energy saving technologies to reduce GHG emissions</p> <p>Output 1.2.2            Decreased use of gas and wood and improvement of working conditions for women</p> <p>Output 1.2.3 Early crop yield and income generation</p>	<p><b>Outcome 1.2            Modern energy saving technologies resilient to climate change introduced in place to reduce GHG emissions</b></p>	
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<p><b>2. Component 2</b>  <b>Raising public awareness and knowledge level on climate change and adaptation practices</b></p>	<p>Output 2.1.1  Increased knowledge on the correlation and interaction of agricultural and natural landscapes:  Output 2.1.2  Increased knowledge on the application of new methods and technologies in agriculture  Output 2.1.3  Increased knowledge on alternative energy saving technologies  Output 2.1.4. Stable thinking on the importance of ecosystem adaptation to climate change conditions formed  Output 2.1.5  Increased involvement of local media and environmental NGOs in the process of mitigating the negative effects of climate change.  Output 2.1.6. Project results are available for all interested parties  Output 2.1.7  Increased evidence on land degradation and LDN planning capacity.</p>	<p><b>Outcome2.</b>  <b>Increased potential of rural communities and farm enterprises to resist the negative effects of climate change</b></p>	<p>200000</p>
<p>3. Total components</p>			<p><b>2 110 000</b></p>
<p>4. Project/Programme Execution cost*</p>			<p><b>200 000</b></p>
<p>5. Total Project/Programme Cost</p>			<p><b>2.310,000</b></p>
<p>6. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)</p>			<p><b>196 000</b></p>
<p><b>Amount of Financing Requested</b></p>			<p><b>2 506 000</b></p>

**\*Project preparation grant (PPG) – 30000 USD**



\* Copyright and technical supervision\*\*, midterm and final external monitoring of the project, midterm and final external audit, midterm and completion missions of the AF experts.

\*\* Copyright and technical supervision, which was calculated calculated in accordance with copyright and urban planning legal acts

a) Component 1: Technical supervision of construction works 1,5 % of the component cost and copyright supervision. 0,4% of the component cost.

*For the case of a programme, individual components are likely to refer to specific sub-sets of stakeholders, regions and/or sectors that can be addressed through a set of well defined interventions / projects.*

### **Project area**

The project will be implemented in the adjacent communities of "Khosrov Forest" State Reserve and "Dilijan" National Park.

### **Brief description of communities**

**Table 1: Adjacent communities of "Khosrov Forest" State Reserve**

Community	Number of households	Arable lands, ha	Pastures, ha	Hay meadows, ha
Urtsadzor	1000	1200	12000	2000
Goght	606	305	3670	8
Total	1606	1505	15670	2008

**Urtsadzor** community includes 3 rural settlements.

The population is mainly engaged in cattle breeding, plant cultivation and fruit growing.

The pressure on "Khosrov Forest" State Reserve is mainly manifested in the form of illegal grazing, unplanned and irregular gathering of wild fruits and berries.

**Table 2: Adjacent communities of "Khosrov Forest" State Reserve**

N		Urtsadzor	Lanjanist	Shaghap	Goght
1.	The number of permanent residents of the community	3320	175	1030	2062
2	Male	1497	80	519	1053
3	Female	1823	95	511	1009
4	Preschool age (0-6 years)	260	8	115	37
5	School age (7-17 years)	458	21	125	269
6	Middle age (18-63 years)	2408	119	668	1468
7	Over 63 years	310	19	60	166
8	Number of the families	735	73	219	608
9	Pensioners, from which:	433	19	134	226
10	Disabled person (first, second, third group)	161	-	5	67
11	Single-parent children	9	-	18	6

12	Childhood disabled children	6	-	2	18
13	Single pensioners	-	-	-	1
14	Large families (with 3 or more minor children)	65	-	30	38
15	The number of family allowance recipient and registered families	117	3	38	26

### **Ararat marz**

It is located in the south-eastern part of the Ararat valley of the Republic of Armenia. It covers the regions of Artashat, Ararat and Masis. The marz has borders with Vayots Dzor, Armavir, Kotayk marzes, western Turkey, and Azerbaijan. The territory of the marz is 2096 square km, the total land area is about 201000 hectares. The region occupies 9.0% of the territory of Armenia and the population density is 149 people per 1 square km. The marz has four urban (Artashat, Ararat, Masis, Vedi) and 94 rural inhabitations. The population of the marz is 311.4 thousand people of which 83,200 people live in cities. Men make up 47.9% of the population, and women - 52.1%.

### **Project area**

Urtsadzor community, which includes 3 rural settlements in the dry regional area. The summers are warm, and the winters are moderately cold. The rivers belong to the Caspian basin (Arax River). The area is favorable for local and international ecotourism as it borders the Khosrov Forest State Reserve. The territory is rich with historical and cultural monuments, monasteries, fortresses, khachkars, bridges, tombs, monuments, memorials.

Farmers are engaged in horticulture, cattle breeding, crop production, vegetable growing, beekeeping and fodder production. The area is relatively poor with metal minerals, but is rich with constructional minerals and mineral waters. In Ararat town there are mineral water and cement production factories.

The **strengths** of the community are the human potential, the rich biodiversity of Khosrov Forest State Reserve, the availability of remote pastures and grasslands, development possibilities of tourism and ecotourism, the relative closeness to the Armenia-Iran interstate road.

The **weaknesses** of the community are low productivity of agricultural crops and low-livestock productivity, lack of anti-hail stations, drinking water problems, poor conditions of irrigation network (water loss reaches up to 70%), pastures and grasslands are far from most populated areas, high level of community pasture degradation, bad conditions of midfield road, the lack of agricultural diversification, inadequate state of alternative income, the lack of energy saving measures, small fragmented plots, insufficient quantity of agricultural machinery, migration and leaving work abroad of youth and young families.

### **Social Situation in Rural Areas**

Inhabitants of rural communities live in socially unfavorable conditions. About 30% of total annual revenues come from salaries, 35% from agriculture, 12% from livestock, 23% from other sources (pensions, benefits, transfers from other countries, etc.).

Over the last 15 years the following signs of climate change have been observed:

- Early and late spring frost
- Spring heavy rains

- Hail
- Drought
- Strong winds
- Landslides
- Mudflows

In the project area communities, the preparedness is in low level to confront climate change. As to the adaptation level raising of agro and natural landscapes and natural ecosystems in the conditions of climate change, no effective action is implemented in communities.

### **Agricultural losses in the RA Ararat marz due to natural disasters**

2006-2007 the damage caused by winter colds, heavy rains and floods amounted to about \$ 28 000 000 USD to the region.

In 2008 the damage caused by the hail amounted to 6 600 000 USD.

In 2009 the damage caused by the hail amounted 1 870 000 USD.

**"Khosrov Forest" State Reserve** occupies a territory of 23359 ha. Reserve area is isolated from the basic infrastructure and only from south-west it borders densely populated Ararat valley. The area is characterized by unique semidesert, phryganoid, sparse forest 7 mountain-steppe landscape symbioses. Intrazonal wetland ecosystems are also represented in the area of the reserve along the riverbanks, as well as in vicinities of Mankuq nd Gyolaysor dwellings. 1948 species of vascular plants and 1783 species of animals of which 1500 species of invertebrates and 283 species of vertebrates are preserved in the reserve. "Khosrov Forest" State Reserve was awarded European diploma of protected areas. It is also included in the potential list of Emerald Network sites.

**Table3: Adjacent communities of "Dilijan" National Park**

Community	Number of households	Arable lands, ha	Pastures, ha	Hay meadows, ha
Dilijan	1995	743	7209	1125
Fioletovo	365	25	135	50
Margahovit	1376	440	3830	1800
Aghavnavanq	122	52	400	30
Total	3858	1330	11574	3005

Dilijan community includes 6 rural settlements.

The population is mainly engaged in cattle breeding, fruit growing, vegetable growing, beekeeping and plant cultivation.

The pressure on "Dilijan" National Park is mainly manifested in the form of illegal grazing, firewood harvesting, unplanned and irregular gathering of herbs, mushrooms, wild fruits and berries.

**Table 4: Socio-economic characteristics of communities adjacent to "Dilijan" National Park**

N		Haghartsin	Aghavnavanq	Teghut	Margahovit	Fioletovo	Gosh	Khachardzan
1.	The number of permanent residents of the community	4100	340	865	3551	1279	1137	371

2	Male	2056	160	442	1794	646	583	182
3	Female	2044	180	423	1757	633	554	189
4	Preschool age (0-6 years)	90	32	94	315	108	47	36
5	School age (7-17 years)	560	60	74	835	154	127	69
6	Middle age (18-63 years)	2600	218	618	2297	890	708	245
7	Over 63 years	540	30	93	525	127	64	33
8	Number of the families	925	100	202	1210	353	377	102
9	Pensioners, from which:	600	34	110	640	105	187	38
10	Disabled person (first, second, third group)	50	5	18	130	5	25	6
11	Single-parent children	24	-	-	17	30	8	4
12	Childhood disabled children	7	-	1	12	3	2	-
13	Single pensioners	35	8	26	135	18	83	10
14	Large families (with 3 or more minor children)	42	6	8	37	120	38	8
15	The number of family allowance recipient and registered families	260	13	5	400	9	87	20

### Tavush marz

Tavush marz is located in the north-eastern part of the Republic of Armenia. The marz is bordered by Gegharkunik and Kotayk marzes in the south, to Lori marz in the west, to Georgia in the north and Azerbaijan in the west. The territory of the marz is 270393 ha. The marz occupies 9.1% of the territory of Armenia, with a population density of 50 people in 1 sq. Km. The marz has 5 urban (Ijevan, Dilijan, Noyemberyan, Berd, Ayrum) and 57 rural communities. The population of the marz is 132.0 thousand people of whom 52.6 thousand live in cities. Men constitute 48.9% of the population and women 51.1% of the population.

#### Project area

Dilijan community and adjacent rural communities are located in moderately damp areas. Summers are moderately warm, winters are mild. The rivers belong to the Caspian basin (Kura river). Mixed forests occupy 61% of the total surface which are distinguished by the diversity of flora and fauna. 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, memorials.

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.

**Strengths** of communities are mild climate, human potential, rich biodiversity of forests, pastures and meadows, development of tourism and ecotourism, availability of Yerevan-Tbilisi interstate highway.

**The weaknesses** of the communities are low crop yields and low livestock productivity, lack of anti-hail stations, drinking and irrigation water issues, remote pastures and meadows, over-exploitation of community pastures, poor roadside roads, lack of agriculture diversification, lack of energy saving tools, small fragmented plots, agriculture Insufficient number of equipment, emigration of youth and young families to outsourced work.

### **Social Situation in Rural Areas.**

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.).

Over the last 15 years the following signs of climate change have been observed:

- Spring early frosts
- heavy spring rains
- Hail
- Drought
- Strong winds
- Landslides
- Mudflows

The readiness to withstand climate change is very low in project area communities. As to the adaptation of agro and natural landscapes and natural ecosystems no effective action is also taken in communities.

### **Agricultural losses in the RA Tavush marz due to natural disasters**

- January-February 2008, orchards of 24 communities of the region were affected by 20-100% causing a loss of about 900,000 USD.
- May and August 2009, 21 communities of the region were affected by hail by 10-100%, causing a loss of 1 208 000 USD.
- May and June 2010, 35 communities of the region were affected by hail by 10-100% causing loss of nearly 2 700 000 USD.

**"Dilijan" National Park** occupies a territory of 33765 ha. The area is typically covered with forests. Dilijan National Park is a unique site of Armenia's wildlife, which stands out by the wealth of original biodiversity, mesophile woodlands, separate ecosystems of scientific, educational and economic interest, as well as by its patrimonial, environmental, cognitive, curative and recreational assets. 1200 species of vascular plants and 1660 species of animals of which 1431 invertebrates and 229 species of vertebrates are preserved in the area.

"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.

## Projected Calendar:

*Indicate the dates of the following milestones for the proposed project/programme*

Milestones	Expected Dates
Start of Project/Programme Implementation	2017
Mid-term Review (if planned)	2019
Project/Programme Closing	2020
Terminal Evaluation	2020

## PART II: PROJECT / PROGRAMME JUSTIFICATION

- A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

The objective of the project is to reduce the climate risk vulnerability of local communities living adjacent to the “Khosrov Forest” and “Dilijan” National Parks by strengthening the adaptive capacity of the agricultural sector (Component 1) and reinforcing their institutional and planning capacity for climate change adaptation by implementing adaptation measures in selected communities.

The programme also has a second component that covers topics regarding capacity building, awareness, local training, as well as knowledge and information management, in order to collect and share the lessons learned in each selected sector, and share that knowledge with other sectors, communities and countries facing the same climate threats and to facilitate information to strengthen national strategy and policies on climate change adaptation. This component is deemed required for guaranteeing the programme sustainability beyond the programme funding.

The main project interventions will be implemented in the adjacent communities of "Khosrov Forest" State Reserve and "Dilijan" National Park.

### **Component 1. Increasing the adaptation capacity of communities to climate change in the agricultural sector**

This component aims to address all local producers (mainly micro and small) located in project areas that are highly vulnerable to extreme hydrometeorological events and to gradual climate change effects. This component emphasizes the importance of local capacity building (authorities, farmer associations, civil society organizations, and the private sector) in climate risk management, through community based adaptation and empowerment of local producers, to increase their capacity to deal effectively with the impacts of climate change.

The component will develop a complex chain of events activities that will increase adaptation and stability of ecosystems under climate change conditions through increasing household incomes, raising the level of food security, increase energy efficiency in public and private sectors. The project aims to increase the adaptive capacity through the promotion of climate smart agriculture and developing activities that promote restoration of natural ecosystems, water and soil conservation, organic agriculture, low cost technologies, improved livestock forage quality and the establishment and the introduction of measures to improve the social conditions of the population.

### **Status quo of community livelihoods**

The main farming activities in **Ararat marz** communities are horticulture (local fruits-apple, apricot, peach, grape, plum etc.), crop production (local vegetables-pepper, tomatoes, egg-plant, potatoes, cucumber, cabbage etc.) and cattle breeding: In some places wheat is also being cultivated. The cultivated areas are privatized by the population (0.5-1ha area of each family), hay-meadows as well, while the pastures are subject for common use. There are no large farms. The main means for the production of the above mentioned farming activities are carried out by the usual traditional way by the lack of non-motorized and mechanized means. The crop yield is very low, for example, under dry conditions wheat yield is 2 tons per hectare, which is a fairly low indicator, meanwhile under irrigated conditions-3-4 tons. About 100 hectares of arable land are not used because of drought and low crop yields.

No large livestock farms exist; most families have 1-5 large, up to 10 small cattle. Mainly, community adjacent pastures are used. Outlying pastures are not used because of bad road conditions, lack of watering points. Under these conditions, community pastures are rapidly exploited and degraded.

Productivity is very low, the average milkiness is about 1000-1500kg which is caused by an insufficient number of feed and animal tribal composition.

Climate changes observed in the last 20 years negatively affect the yield of pastures and hay-meadows, vegetation cover is becoming impoverished, fodder base is reduced leading to the leading to the reduction of livestock products. In the conditions of poor vegetation, strong winds and high thermal background, the honey crop also declines.

Under the current climate change scenarios the risk of fires increases, for example due to the abnormal heat observed in June-August 2017 over 500 ha of land was destroyed by fire of which 300 hectares of forests. The fire caused great damage to the flora and fauna of the reserve. The restoration of the burnt juniper sparse forests is highly problematic.

The agriculture in the area of the project is solely irrigated. Formerly established irrigation systems are in poor conditions, water loss is high, for example the quantity of water in the main canal kaes 200 l per second, of which 20 l per second reaches to farmers. Since only surface irrigation is performed and no new irrigation methods are used, the water loss is quite high. The communities get water from the main canal (fed by Vedi and Khosrov rivers) which comes 5 km away from Khosrov Forest State Reserve. Since the main canal has not been renovated for many years, water loss is high, which makes up 50-60% of the total water volume.

The situation is almost the same in the communities of **Dilijan marz** as well, the population here is mainly engaged in cattle-breeding and horticulture (local fruits-apple, peach, plum, pear etc.), crop production (local vegetables-pepper, egg-plant, potatoes, cucumber, cabbage etc.): Wheat is not being cultivated in the villages of Dilijan marz, as there are no irrigated lands. It is being cultivated only in Fioletove and Margahovit communities. Cultivated lands are prioritized by the population (0.5-1ha area of each family), hay-meadows as well and the pastures are for

common use. There are no large farms here. Modern technologies and cultivation methods are not used in agriculture and livestock breeding due to which productivity is very low. The crop yield is very low, for example, under dry conditions wheat yield is 2 tons per hectare, which is a fairly low indicator, meanwhile under irrigated conditions-3-4 tons. Cultivated lands are mainly being irrigated with drinking water as the irrigation network is largely unusable.

There are no major farms, most of the families have 1-3 large, up to 10 small cattle. Mainly, community adjacent pastures, forest areas are used for grazing, outlying pastures are not used as they pass through Dilijan national park and there are no arrangements with the Park management to use these roads. Here also there is a lack of watering points in outlying pastures.

Productivity is very low, the average milkiness is about 1300-1500kg which is caused by an insufficient number of feed and animal tribal composition.

Climate changes observed in the last 20 years negatively affect the yield of pastures and hay-meadows, vegetation cover is becoming impoverished, fodder base is reduced leading to the leading to the reduction of livestock products. In the conditions of poor vegetation, strong winds and high thermal background, the honey crop also declines.

In comparison to Ararat marz the area of Dilijan marz is much more humid, but under the current climate change scenarios the risk of fires also increases here. Climate trends here also lead to more drying, the number of precipitation has dropped dramatically, and there is also a fire-hazardous situation here. The farming is solely irrigated in the project area. Formerly established irrigation systems are in a poor condition and are not used except in Margahovit and Fioletovo communities.

The programme will reduce the climate change effects in agriculture, through the following outcomes:

### **Outcome 1.1 Strengthened farming productivity in response to climate change, through the reduction of soil losses and improved irrigation water management.**

Under current climate change scenarios it is urgent to avoid crop yield reductions and to maintain agricultural productivity in order to keep the current trends in food production. This, coupled with large-scale land, soil, and water degradation, will challenge the long-term and sustainable production of agricultural resources that promote food security and sustainable livelihoods. Traditional mechanisms, including conventional agro-ecosystem management practices, are not economically feasible and long-term sustainable adaptation strategies, especially for those communities already experiencing food security related issues.”

Changes in climate may alter the nutritional quality of crops, which may require changes in the composition and application rate of inorganic fertilizers and use of mineral supplements in livestock.

The demand of water for irrigation is a critical element to maintain important crops along the country. This will be important for Armenia’s food security agenda implementation, improvement and refinement of sustainable land management practices. Sustainable agro ecosystem land management practices including the establishment of seed banks for the long-term storage of agricultural seeds, improved livestock forage quality, and agroforestry practices are crucial.

Regarding the farming sector, there is a great adaptation potential that allows enhancing the productivity and efficiency in managing the services of productive ecosystems and reducing



risks and/or losses. These enhancements will be achieved by implementing activities aimed at generating, sharing and adopting technical options that reduce the vulnerability of productive units and strengthen the response to climate change. The aim is to reduce the vulnerability through sustainable and low-cost production technical options, and their validation at field level. In this way, it is expected that, through the Adaptation fund, the adoption of this type of technical options in the selected vulnerable areas is achieved and therefore risks are reduced.

All interventions are planned in a participatory manner based on the challenges identified by the communities. In summary the following activities are planned:

1. Renovation of main irrigation water supply systems, where water loss reaches up to 80%. The demand of water for irrigation is a critical element to maintain important crops along the marz. Besides the area is highlighted by the scarcity of water. The anticipated change will save water, the irrigated area will be expanded, will promote diversified agriculture and crop yield will be increased thus increasing the incomes of the population.
2. Establishment of drip irrigation intensive orchards in communities. This system will also save water, new orchards will be created, soil degradation will be prevented, saved water will be used for the irrigation of new lands, new fruitful orchards will be established thus increasing populations' income
3. Restoration of existing field tracks, pastures, grasslands and abandoned agricultural lands. Major purpose for these activities would be to access fodder production areas (hay and fodder crops) to extend the winter feeding period. This will also promote the accessibility of agricultural landscapes.
4. Rehabilitation of community pasturelands and grasslands by means of surface improvement and construction of livestock watering points. This activity will undertake improvement of the management of natural grasslands and hay meadows in the project area, including rehabilitation of hay meadows, indigenous reseeding, rotational grazing and restoration of degraded pasturelands, construction of livestock watering points and re-introduction of forage legumes into crop rotations. Stock watering points will be located to make better use of pasture resources to utilize pastures, which are underused because of lack of drinking water for lives.
5. Improve fodder management through the establishment of sowing areas of perennial plants (lucerne, sainfoin) to create a sustainable base for fodder. This activity will create a sustainable base for fodder, will extend the wintering period of livestock and will promote degradation of adjacent pasturelands, as well as this will increase the fertility of the soil.
6. Establishment of agroforestry systems on degraded slopes. Prevention of erosion of slopes by the planting of dry-resistant species, as well as berries of high demand in the market.
7. Strengthened monitoring system for climate smart agriculture, land degradation neutrality, forest and ecosystem adaptation;

The above mentioned activities will promote income generation of the population, improvement of livelihood, decrease of anthropogenic pressure on natural ecosystems and in the result increasing the adaptation capacity to climate change in the agricultural sector.

Single system of operations will unite the methods of community capacity building and ecosystem resilience increase under climate change conditions that will more effectively respond to anthropogenic and non-anthropogenic challenges.

Particular importance will be attached to the institutional capacity development of communities. It is planned to create union of stakeholders in the communities, which will be responsible for the use, maintenance and continuity of the project outcomes. Management plans will be developed for each community on a participatory management basis, which will reflect planned activities and implementation schedule.

The component will focus on the dissemination of best practices in the farm enterprise and public sector, which will improve their opportunities and as a result will contribute to the reduction of anthropogenic pressure on ecosystems under climate change.

### **Outcome 1.2: Modern energy saving technologies resilient to climate change introduced in place to reduce GHG emissions**

This outcome is based on the idea that ecosystem adaptation to climate change is possible to enhance by decreasing the pressure on them and their vulnerability and building alternative methods of resilience to climate change.

The goal of this outcome at community level is to strengthen population's livelihood by creating new jobs, diversify agriculture, and decrease energy costs in the community and farmers' budget. In the result the overexploitation of agricultural and natural ecosystems will decrease and the resilience and adaptive capacity of landscapes on which the communities strongly depend will thus be enhanced.

The following activities are planned:

1. Installation of alternative hot water supply systems for the public sector. This activity will first of all promote energy saving, decrease the use of gas and wood, decrease the number of greenhouse gas emissions, improvement of working conditions of women employees, as well as reduction in the community budget.
2. Construction of non-heated greenhouses with lightweight constructions. This activity will promote production of seedlings, increase in crop areas, introduction of non-traditional crops and which will create an opportunity for early crop yield, as well as creation of new jobs for women.
3. Construction of solar dryers for fruits, berries, vegetables and herbs. Major purpose for these activities would be the reduction of crop loss, storage improvement and creation of new jobs for women.

### **Component 2. Raising public awareness and knowledge level on climate change and adaptation practices**

The aim of this component is to build, under climate change conditions, a knowledge base on the increase of ecosystem adaptation level and the interconnection of community capacity building. The activities involved to achieve this aim relate mainly to training on efficient management of water resources, climate smart agriculture and contribution to land degradation neutrality, and as well as the adaptation to climate change. The component will also support awareness-raising and information activities for communities, farmers, institutions and stakeholders on risks related to climate change and training related to the corresponding adaptation measures. Component 2 will furthermore bring together capacity building, monitoring instruments and long term investment planning to sustain climate smart agriculture

practices and support land degradation neutrality. To increase work efficiency highly qualified specialists will be involved both from higher education institutions and regional centers of agricultural assistance. Through this method it will be possible to combine the efforts of ecology and agriculture and to develop joint training program on the increase of the level of adaptation of ecosystems under climate change conditions.

The 2nd component of the project proposal is related to the increase of knowledge and awareness of various target groups of the population. The program is based on the idea that the only people endowed with necessary knowledge can adopt project objectives and actively be involved in the implementation of all activities and outcome conservation. For this purpose the target groups will be finally specified in the communities, their needs based on which training programs will be developed. Particular attention will be paid during and upon completion of the project on the dissemination of knowledge. For this purpose individual target group will be formed in each community whose members (mainly teachers, specialists of regional agricultural support centers, municipal employees) based on the specifics of their work and willingness will be able to disseminate their knowledge among other interested groups. For other target groups the training program will focus on the clarification of the practical problems that are more interesting and are most in-demand for wide layers of the population. After each training program, effectiveness evaluation will be carried out by participants, and outcome analyses-by experts. Positive and incomplete aspects of the trainings will be revealed based on which recommendations will be developed to improve the effectiveness of such courses.

Knowledge and awareness component will also focus on the dissemination of best practice through mass media and local self-government bodies. This event will be supported by the elaboration, publication and dissemination of public information leaflets and booklets in the communities of the marz.

Since the program provides a wide variety of events, which ultimately should increase the level of adaptation of ecosystems to climate change specialists on agriculture, energy, sustainable management of natural and agricultural ecosystems will participate in the trainings whose involvement in the project will contribute to summarizing and disseminating best practice in other regions of the Republic. Summary report will be posted in the websites of EPIU, marz municipality and community to increase best practice accessibility on knowledge and awareness level.

The training program will be based on the idea of the correlation of agricultural and natural landscapes and on the importance of ecosystem adaptation under climate change conditions. The provision of knowledge on energy saving, increasing the productivity of agriculture, improvement and sustainable management of natural ecosystems will be highlighted.

The training program will provide a differentiated approach to the needs of social and different age groups developing knowledge raising programs for them.

Protected areas cooperation issues will be involved in the trainings, as protected areas are the areas ensuring environmental sustainability, which contribute to the adaptability of ecosystems to climate change.

Particular attention will be paid to the creation of groups possessing the necessary knowledge base, which will ensure the continuity of knowledge dissemination during and after the project closure. To increase work efficiency, thematic guidelines and public information booklets will be developed, published and provided to all interested parties.

Lecturer-listener based model will be used during awareness raising trainings which will make provided material perceptible through using different actions.

The component will contribute to strengthening the capacity of local media and environmental NGOs, through their involvement project dissemination, propagation and implementation activities.

The whole process of project implementation will be available for all strata of society. Modern information dissemination tools will be used for this. Regular information on the progress and outcomes of activities will be provided through the websites of the Ministry of Nature Protection, regional administrations and EPIU. Whistleblower hotlines of Ministry of Nature Protection, regional administrations and EPIU will make it possible rapidly respond to all complaints with the participatory problem solving approach.

In line with the national legislation, policies and national targets<sup>2</sup>, the project would support initiatives for sustaining climate smart agriculture and in this context support the process for promoting land degradation neutrality in line with the voluntary targets set. More specifically, this project component would support the establishment of a dedicated monitoring system for land degradation and land related climate change indicators and support the enabling environment for sustaining sustainable land management practice. More specifically the following interventions are planned and will be implemented with technical support from the international community, such as UN Convention on Combatting Desertification (UNCCD) and its Global Mechanism (GM):

- Strengthen target setting and monitoring systems for land degradation neutrality and land related climate change indicators to support the monitoring of land degradation and land related climate change indicators, such as soil carbon and vegetation cover conform international standards and applying state of the art techniques, such as remote sensing. Monitoring sites would be established and the currently available baseline information would be updated to support the contribution to climate change adaption and LDN target setting process;
- Strengthen capacity building for climate smart agriculture and sustainable land management practices with activities specifically addressed to the needs of female headed households, women groups, etc.; See also component 1 for activities related to farmer field schools, and lecturer listener and other training activities.
- Support the development of climate smart LDN investment strategies, which would allow farmer groups, unions of producers, small and medium enterprises, NGOs and other related stakeholders to provide private investments for sustaining climate smart agricultural practices and thereby sustaining the proposed interventions. The project would support the targeted capacity building activities, e.g. for micro, small and medium enterprises and may support small prefeasibility studies in support of these interventions.

***B. Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project /***

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<sup>2</sup> The main goal of the LDN strategy, proposed for the period until 2040, is to reestablish the loss of soil organic carbon in the period from 2000 to 2010, and an increase of carbon sequestered by 2.8%. To achieve this goal, the following actions will be taken.

*programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.*

As highlighted above, the many environmental services and benefits that will be derived from this project will go beyond the country level and will contribute to a number of global environmental benefits. By promoting greater coordination, collaboration and enhancing capacity, the project will promote an exemplary enabling policy environment which will reduce many of the barriers to the successful mainstreaming of ecosystem resilience to climate change adverse effects. This will be done by developing principles for effective capacity building and institutional frameworks for sustainable management of natural and agricultural ecosystems. The protection of Armenia's rich portfolio of globally important wild relatives, and associated evolutionary processes represents a global good of vital importance to the future of the planet and its inhabitants. Such unique germplasm harbours important genetic traits that can help the world cope with climate change and contribute to future food security. In this respect it will identify and test 'best practices' which strengthen adaptability, stability and resilience of the natural resources. By generating local income and economic development that rewards the provision of ecosystem services in some of the most impoverished areas of Armenia the project will contribute to reducing poverty and enhancing well-being and thus reduce future pressure on vulnerable ecosystems.

The project will create age and social groups endowed with the necessary amount of knowledge who upon completion of the program will be able to disseminate their knowledge in other communities concerned. The project will strengthen the capacity of local media and environmental NGOs.

The programme will provide significant economic, social and environmental benefits to selected communities. Armenia faces multiple hazards and shows a wide variety of vulnerabilities to climate change, which will result in rural communities and ecosystems negatively affected. Rural vulnerability is due to low human and infrastructure conditions related to poverty.

An important analysis was made, in order to choose the most vulnerable regions in the country regarding each of the components selected. Aspects such as: poverty, provision of basic services, basic dimensions of human development, productive activities, important biodiversity spots, and current-future vulnerability. As a result, vulnerable groups benefiting from this programme include:

**Rural communities:** livelihoods are highly dependent on climate, particularly for those communities that are considered the most vulnerable. The main actors are the municipalities, the local development associations, the cooperatives and other associations and peasants.

**Local farmers:** the programme will help improving their production systems using a low cost/organic/nontraditional approaches that would contribute to increase their productivity, maintain their income and their resilience to climate change.

**Women:** specifically women-headed households will benefit from improvements on the supply of irrigation water, implementation of sustainable and organic measures for agricultural sectors.

The specific social benefits of the programme are the following:

- Increase of capacities and adaptation capacity in all the components of the programme. It is expected to train more than 300 beneficiaries on adaptation measures (50% women).

- Active community participation. At least 4 communities and 11 rural settlements are beneficiaries of the adaptation measures implemented. Each of the activities involves the participation of organizations at the local level.
- Capacity building among social groups. The programme will improve the levels of understanding of climate risk and adaptation to climate change to:
  - ✓ More than 200 stakeholders
  - ✓ 4 community representatives (traditional leader, women and young groups)
- Improvement of food and nutritional safety in rural communities.
- Efficient management of water resources for the benefit of the community
- Decrease in the occurrence of diseases related to climate change
- Food security: the geographical scope selected for the first component responds to the necessity of food security. At the same time, the area has the largest number of micro, small and medium size producers, which falls under the scope of family farming or small-scale farming.

***Economic Benefits:***

- Reduction of production losses due to the negative effects of climate variability
- Increase of productivity and quality of local production
- Increase of the capacity to face climate variability.

***Environmental Benefits:***

- Soil preservation: One of the most important environmental benefits in the agricultural sector is soil conservation and decreased erosion.
- Reduction of erosion and sedimentation
- More availability of water for production and consumption
- Improvement of access to water supplies
- Improvement of the protection of ecosystems protected areas:
- Adoption of good practices that will be continued through continuous work with community groups and with public and private entities as well.
- Contribution to the voluntary target for land degradation neutrality;

C. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.

***Cost-effectiveness***

The targeted interventions are based on recognized best practices from the ecological sciences and known to be cost-effective. In order to achieve a cost-effective implementation, the proposed programme includes: first, a strong focus on capacity building that involves the participation of relevant stakeholders at several levels, from the political level, including the technical one, and also the creation of capacities at the local communities. Secondly, also a strong focus has been made to promote a multiplier effect of all individual projects, so it will be possible to have a relevant impact on a wider number of people who are indirectly involved in the project: especially through the dissemination of information, structured as a methodological tool, a wide number of citizens and civil society organizations will acquire new skills to better

participate in the life of the community. And, the exchange of knowledge through peer-to-peer learning, that is a powerful way to share, replicate, and scale up what really works, by learning from the practical experiences of those who have gone through similar challenges.

The programme activities require investments on the rehabilitation of infrastructures, irrigation water management systems, energy efficiency, reduction of risk and of optimization of land use, improvement of natural and agro-landscapes. This kind of investment is expected to generate long-term benefits in terms of resilience.

Activities related with knowledge management and capacity building involve technology transfer among beneficiaries, technicians, private-public organizations searching to switch from traditional resource uses, methods and management practices to new technologies or measures that increase the resilience of farmers and community inhabitants.

As an important knowledge management approach, knowledge exchange mechanisms are promoted among communities and organizations as well as capacity building, which will ensure adaptation on local planning processes as well as better decision-making by involving local stakeholders on topics such as climate change, resilience and adaptation in agriculture, water management. At the same time, the exchange of knowledge will lower the operational costs and increase benefits due the opportunity of replicating best practices and lessons learned amongst communities.

The implementation of this programme is highly significant because it discusses a series of key issues for Armenia:

- The beneficiaries of the programme are amongst the most vulnerable population of the country: communities with low human development indicators, highly dependent on natural resources taking into account restrictions of protected areas. It's expected through the programme to integrate appropriate considerations of climate change and variability into daily practices among beneficiaries.
- The participatory approach and processes (a multi-stakeholder participation) both at the time of design and implementation of the programme will allow improving capacities of governmental organizations, civil society organizations, producers associations and NGOs.

The cost effectiveness of the proposed project is closely linked to the approach of increasing local resilience through the empowerment of local and community-based institutions, establishing new partnerships with civil society organizations and disseminating information. By implementing this project in a community-driven and participatory manner, the impact of the project will contribute to greater abilities of local communities.

The resources of the Adaptation fund will not be the only income for the programme, but they can help leverage other resources for the implementation climate change adaptation projects in the country having this project as a good example.

The resources of the Adaptation Fund will be carefully managed to reach the efficiency and the quality-price relation. The control measures include: · Ensure that procurement procedures are appropriately implemented · Assess costs-quality (value for money) and implementation of cost benefit analysis · Effectively use of limited resources and operational costs · Products and services acquired will be governed by rules established by the AFB.

**Component 1. Increasing the adaptation capacity of communities to climate change in the agricultural sector(Amount US \$.....)**

The component aims to increase the adaptive capacity through the promotion of climate smart agriculture and developing activities that promote restoration of natural ecosystems, water and soil conservation, organic agriculture, low cost technologies, improved livestock forage quality and the establishment and the introduction of measures to improve the social conditions of the population.

<b>BENEFITS FROM PROPOSED INTERVENTION</b>	<b>ALTERNATIVE MEASURES AND REASON FOR NOT OPTING FOR THIS</b>
<ul style="list-style-type: none"> <li>• The mentioned interventions can build climate resilience through managing competing land-use systems, while at the same time reducing poverty, enhancing biodiversity, increasing yields and lowering greenhouse gas emissions.</li> <li>• As well as, increases nutrient cycling, water redistribution, provides shade, controls erosion, increases carbon stocks, etc.</li> <li>• Capacity building to diversified agriculture, food production through practices such as agroforestry, drip irrigation system for orchards, sustainable base for fodder, improvement of crop yield of pastures and hay-meadows etc., which will increase agricultural productivity</li> <li>• The participatory approach involving local people in managing natural resources and adaptation planning will lower management costs and will sustain the outcomes over time.</li> <li>• Renovation of main irrigation water supply systems which has several benefits: <ul style="list-style-type: none"> <li>-Reduction in the water leakages in the system</li> <li>-Crop yield increase</li> <li>-Production cost price reduction</li> <li>-Cost for the maintenance of irrigation water system decreased</li> <li>-Improvements in the availability and sustainability of water sources</li> </ul> </li> <li>• Introduction of energy saving technologies such as solar water heaters, solar dryers and non-heated greenhouses include the following</li> </ul>	<p>Conventional farming systems share many characteristics:</p> <ul style="list-style-type: none"> <li>- Large capital investments in order to apply production, investments that local communities are not able to apply.</li> <li>-lack of financial resources for the improvements of lands and soil quality etc.</li> </ul> <ul style="list-style-type: none"> <li>- External energy inputs; among others</li> <li>- Conventional techniques increased problems as the growing pressure on land, and rapid deforestation.</li> </ul> <ul style="list-style-type: none"> <li>-Surface irrigation increases water usage and losses</li> <li>-it is labour-intensive in lands having slopes, contributes to soil erosion</li> </ul> <ul style="list-style-type: none"> <li>- Conventional methods by the use of gas and electric energy, wood etc. are 4-5 times expensive</li> </ul>



<p>benefits:</p> <ul style="list-style-type: none"> <li>- promote energy saving, decrease the use of gas and wood, decrease the number of greenhouse gas emissions</li> <li>- They are efficient. Approximately 80% radiation is turned into heat energy.</li> <li>- reduction in the costs for electric energy, community and population's budget</li> <li>-Promotion of job creation for women</li> <li>-Reduction of crop loss, storage improvement</li> </ul>	
<p><b>Component 2</b></p> <ul style="list-style-type: none"> <li>• The participatory approach involving local people in managing natural resources and adaptation planning will lower management costs and will sustain the outcomes over time.</li> <li>• Strengthening the farmers and community groups' organizational capability and increasing their knowledge on issues related to climate change and variability will allow the beneficiaries to adapt to new climate scenarios if needed and ultimately reduce their dependence on external interventions.</li> </ul>	

*D. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.*

The impact of/share of emissions of the Republic of Armenia (RA) to global climate system emissions is small, and is currently estimated to be around 0.014% of the global level. In January 2010, the country expressed its intention to be listed to agreeing to the Copenhagen Accord. Armenia accepted "Doha Amendment to the Kyoto Protocol" which was approved by the Government of the RA.

The Third National Communication (TNC) on Climate Change of the RA was developed in 2015 according to UNFCCC and the Guidelines for national communications of Non-Annex I Parties to the Convention. TNC covering the period of 2007-2012 has extended the studies on and assessments of climate change-related issues. TNC describes the position of the RA for addressing climate change issues and measures implemented and planned, as well as the country's needs for further steps and activities.

Highlighting the need of countries to combine their efforts in combating climate change, Armenia as a developing country shares the commitment to limiting greenhouse gas emissions. The quantitative indicators of these contributions are summarized in the Intended Nationally Determined Contributions (INDC) of Armenia (Protocol Decision No 41, 10 September, 2015 adopted by the Government of the Republic of Armenia), which states *that “adaptation strategy and contributions are based on the requirement of the UNFCCC Article 2 “Objective”, which stipulates to restrain climate change within timeframe sufficient to allow ecosystems to adapt naturally to climate change”*. Ecosystem approach to adaptation is one of the key pillars of adaptation strategy of Armenia and is in line with country’s environmental policy, thereby ensuring compliance with respective international conventions and treaties, and establishing basis for inter-sectorial/cross-sector cooperation and facilitating cross-border cooperation and which, in the result of extensive consultations, have been approved by both the Government of the Republic of Armenia and the civil society and have been presented to the attention of Parties of the UN Framework Convention on Climate Change (UNFCCC). This document actually represents the official long-term concept of our country aimed at the implementation of our commitments under UNFCCC, and where along with the mentioned climate change mitigation measures those of adaptation with the component on the transfer and development of the technologies are included.

Armenia has integrated sustainable development principles in its policies and continues to act towards mainstreaming environmental issues in development programs in the context of the country's international environmental commitments.

Armenia Development Strategy for 2014-2025 (ADS) (Annex To RA Government Decree # 442 - N on March 27, 2014) provides a major set of social and economic development priorities of the country, its objectives, main obstacles and limitations to development, key reforms, and policy mechanisms for the realization of priority goals (Ref-5).

Armenia is actively involved in Technology Need Assessment (TNA) that should ensure adequate technological support and create a favorable environment for technology development and transfer.

The process of TNA is the continuation of systematic research on climate change in the RA. The TNA Project provided a great opportunity for RA to perform country-driven technology assessment to identify environmentally sound technologies that might be implemented with a substantial contribution in addressing climate change mitigation needs of the country.

The first step was technology prioritization, which includes technological information, enabling environment, capacity building and understanding the mechanisms for technology transfer.

Thus the project goal and objectives are fully consistent with the above mentioned *national or sub-national sustainable development strategies and other legal documents, as well as* with Armenia’s National Biodiversity Strategy Action Plan, the Strategy and National Action Programme to Combat Desertification in Armenia, the Land Degradation Neutrality National Strategy, 2015-2018 Social-Economic Development Program of the RA Ararat marz, 2014-2017 Social-Economic Development Program of the RA Lori marz, 2012-2015 Social-Economic Development Program of the RA Tavush marz and this contributes to financial stability beyond the project. The proposed project will put in place the policies and regulatory frameworks and linkages that have been lacking in the area of ecosystem resilience under climate change conditions.

*E. Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.*

There are no relevant national technical standards for tree planting, forest restoration or conservation agriculture related to climate change in Armenia. As such, international best practice standards will be followed throughout the AF project. EPIU is the government organization and our activities do not require EIAs while the reconstruction activities will be carried out according to the requirements of the RA law on Urban development and will therefore ensure that all relevant regulations are adhered to. No items requiring significant mitigation measures were noted. Interventions designed to provide technology transfer, training or that include local community participation will be conducted in adherence with Armenia's labour codes and gender equality targets.

*F. Describe if there is duplication of project / programme with other funding sources, if any.*

There is no duplication of project funding with other sources. Communities were asked questions about previous and ongoing support received from government and non-government organizations. The AF project will not duplicate efforts, but rather capitalize on lessons learned and platforms created for uptake of the eco-agriculture approach. Opportunities for creating synergies for achieving cost reductions have been noted. The sharing of knowledge generated by the AF project and the projects noted below will be an important component of the close working relationships established. Other climate change financed projects will be studied to avoid overlap.

*G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.*

The 2nd component of the project proposal is related to the increase of knowledge and awareness of various target groups of the population. The program is based on the idea that the only people endowed with necessary knowledge can adopt project objectives and actively be involved in the implementation of all activities and outcome conservation. For this purpose the target groups will be finally specified in the communities, their needs based on which training programs will be developed. Particular attention will be paid during and upon completion of the project on the dissemination of knowledge. For this purpose individual target group will be formed in each community whose members (mainly teachers, specialists of regional agricultural support centers, municipal employees) based on the specifics of their work and willingness will be able to disseminate their knowledge among other interested groups. For other target groups the training program will focus on the clarification of the practical problems that are more interesting and are most in-demand for wide layers of the population. After each training program, effectiveness evaluation will be carried out by participants, and outcome analyses-by experts. Positive and incomplete aspects of the trainings will be revealed based on which recommendations will be developed to improve the effectiveness of such courses.

Knowledge and awareness component will also focus on the dissemination of best practice through mass media and local self-government bodies. This event will be supported by the

elaboration, publication and dissemination of public information leaflets and booklets in the communities of the marz.

Since the program provides a wide variety of events, which ultimately should increase the level of adaptation of ecosystems to climate change specialists on agriculture, energy, sustainable management of natural and agricultural ecosystems will participate in the trainings whose involvement in the project will contribute to summarizing and disseminating best practice in other regions of the Republic.

**H.** Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

EPIU along with the Ministry of Nature Protection, as well as Climate Change Information Center, UNDP Armenia office have worked in close coordination for the formulating this project concept. During the development of this concept proposal, stakeholders have been consulted and consensus was developed with regard to specific needs on adaptation actions for each of the sectors selected.

The heads of Eco-education and donor funded project implementation division of EPIU were delegated to the possible project areas to present in the communities the goals of Adaptation Fund, to have discussions on topics such as needs at the community level, the most vulnerable areas, the current actions regarding these issues and general information about the country's climate threats and the country's vulnerability. The majors and community leaders assigned their assistants and advisors to maintain contacts and consultations with programme partners throughout the programme design in order to feed into technical design and to refine outputs and activities, as well as provide any information needed to EPIU for the design of the project.

The consultation process started since the beginning of the concept proposal formulation. This first bottom-up approach allowed the NIE to establish the main adaptation activities that were considered effective and possible with the available funds.

The components of the concept proposal were selected at the National level, by the Third National Communication on Climate Change and the Intended Nationally Determined Contributions (INDC) of Armenia and the geographical scope was selected considering the vulnerability, adaptation capacity and other important aspects.

By the order of EPIU director dated May 18, July 6 staff of EPIU headed by the Deputy director have been sent to communities to have consultations and discussion with all the stakeholders, vulnerable groups that are directly related to project objectives. Stakeholders involved in the consultation process were given drafts of the programme concept proposal, so that comments and suggestions of improvement were collected and addressed in the final draft.

### ***Selection of stakeholders***

Given the Components' objectives and problem requiring solutions the activities will be mainly addressed to awareness and knowledge raising of those vulnerable groups that are directly related to project objectives, ways of achieving them, ensuring stability and continuity.

Based on consultations with community leaders, Social-economic development programs of the RA Tavush and Ararat marzes, National Statistical Service data, the population structure of communities, as well as based on lessons learnt from the projects implemented by EPIU and

other organizations initial stakeholder groups are community administration employees, members of farm households, teachers and high school students, the mass media and the staff of specially protected natural areas. The final list of target groups will be determined by the results of the needs assessment.

1. **Community administration employees:** In conformity with the law of the Republic of Armenia on Local Self-government community administrations have rather extensive rights to carry out environmental, reconstruction, health protective, construction and other activities within their administrative boundaries.

The program believes that raising the level of the knowledge of the municipal councils and staff members is a priority issue and will contribute to the effective implementation of the activities envisaged by the projects, outcome conservation and experience dissemination. At the same time decision-makers having the relevant knowledge will not make decisions in the future that would cause damage to the environment and in the result to community's interests.

2. **Members of farm households:** The impact zone of the project is mainly agricultural which is carried out relatively on small plots/1200-2500 sq. metre/.There are very few large farms, which are able to organize awareness and knowledge raising events for their employees. The selected target group is the most polynomial and vulnerable as unsatisfactory social conditions restrict their opportunities to get sufficient knowledge on urgent environmental problems and effective measures to solve them.
3. **Teachers and high school students:** This target group is highlighted by the fact that they are the direct bearer and transmitter of knowledge. Teachers endowed with sufficient environmental knowledge (focusing the objectives of the project) can form stable mindset among students on the importance of environmental events and biodiversity conservation, while among high school students both to disseminate knowledge and to decide on getting professional education.
4. **Mass media:** Great is the role of this target group on the dissemination of information on the project, coverage of events, outcome analyses, propagation of positive experience, transparency and mobilization of stakeholders. Special training program will provide mass media with the necessary knowledge and printed material for distribution ensuring continuity of the project.
5. **The staff of specially protected natural areas:** The program emphasizes the importance of increasing awareness of this group and fruitful relationship with the surrounding communities. The training program will focus on solving conflicts between SPNA and community, their solution ways, participatory management and benefit distribution issues. This target group is directly connected with the surrounding communities and has all the possibilities to widely disseminate the results of the project and best practice.

The common idea for all target groups is that the humanity can fight not only to mitigate climate changes, as well as to develop effective measures to increase the level of natural and agricultural landscapes adaptation.

- I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Funding is being requested for the implementation of interventions to reduce the vulnerability and improve the resilience of the local populations of “Khosrov Forest” State Reserve and “Dilijan” National Park adjacent communities, by focusing on critical sectors (degraded natural ecosystems, infrastructures, agriculture, water resources, energy efficiency, additional incomes and etc) in order to reduce the negative impacts of climate change including:

- Increasing the adaptation capacity to climate change in the agricultural sector (including agriculture and livestock),
- Improving the capacity of communities, producers, institutions, and other relevant stakeholders regarding adaptation to climate change

The total funding required for this project is US\$ 2, 528, 000 including project management and project execution fees.

J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project / programme.

### ***Sustainability***

It is expected to impact the geographical areas selected and more than 18,000 inhabitants. The capacity building process of the programme allows training local leaders who will be able to build capacity within the communities themselves.

The programme promotes initiatives that will continue to provide results beyond the year of implementation. As an example, the restoration and improvement of irrigation water systems, infrastructures, pastures and hay-meadows have long-term lifespan. However, those initiatives require regular maintenance after the implementation. The participation of local organizations, community administrations, NGOs and specially the commitment of local beneficiaries (individuals and organizations) make possible to preserve and even continuously improve the initiatives. In the agricultural sector, the sustainability of the proposal depends on the new knowledge provided by the adaptation initiatives, the use of innovative cost-effective technologies, and the monitoring of the effects of climate change and its variations. In these cases, the fulfillment of the objective may be observed in terms of productivity and the profits of the agricultural sector, by having successfully included adaptation actions. Efforts will be made to capture the long-term sustainability of the proposed sustainable land management and adaptation measures by supporting an adequate monitoring system.

Sustainability will be further supported through mainstreaming and cross-sectoral, multi-stakeholder recognition of the role that increasing public awareness and knowledge to farmers, community leaders, relevant district and provincial officers on climate change and alternate adaptation measures in agriculture and water management can play in addressing many of the development challenges Armenia faces. In line with the many activities including awareness raising on climate change, there are more measures will be undertaken to change people’s attitude and practices in sustainable adaptation to climate change. The project will furthermore strengthen the sustainability of the proposed interventions by supporting the land related policies and legislation and facilitating further investments in support of sustainable land management and climate smart agriculture.

In order to sustain project activities beyond the project implementation date Community management plans will be developed which will clearly define the responsibilities of all actors engaged in the implementation of the project at community level. Upon completion of the

project delivery-acceptance acts will be signed with EPIU and relevant community leaders to transfer the project outcomes and relevant agreements will be signed with the community leaders for the further maintenance and management of project outcomes. Moreover, the savings generated from energy, gas etc in public sector will be used for this purpose. Agreements will be signed with stakeholder groups as well for the mutual use and maintenance of project outcomes.

**K.** Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.

<b>Checklist of environmental and social principles</b>	<b>No further assessment required for compliance</b>	<b>Potential impacts and risks – further assessment and management required for compliance</b>
<i>Compliance with the Law</i>	<p>No further assessment required for compliance</p> <p>All activities of the project are in line with RA laws and normative acts and there is no need for additional assessment of conformity</p>	
<i>Access and Equity</i>	<p>Further assessment is required as the project may not be sufficiently accessible to all groups.</p>	
<i>Marginalized and Vulnerable Groups</i>	<p>Project activities do not have negative impact on marginalized and vulnerable groups</p>	
<i>Human Rights</i>	<p>Human rights in natural resources use, equity, education, health, and other relevant sectors are protected by constitution and other relevant laws. The project does not foresee any violation of human rights.</p>	
<i>Gender Equity and Women's Empowerment</i>	<p>Women's rights are protected and they are</p>	

	<p>included in all stages of project development and implementation. Efforts will be made to ensure equal participation of women in interventions and decision making too. Capacity building and skill development training for sustainable livelihood generation will be provided to the women of communities. This will ensure participation by women fully and equitably, and that they do not suffer adverse effects.</p>	
<i>Core Labour Rights</i>	<p>Labor rights are protected by the Constitution and Civil Code of the RA</p>	
<i>Indigenous Peoples</i>	<p>Main population of the area is Armenians, the percentage of indigenous peoples (Russians) identified in the project area is very few.</p>	
<i>Involuntary Resettlement</i>	<p>Project interventions does not provide for resettlement of residents</p>	
<i>Protection of Natural Habitats</i>	<p>An additional assessment of compliance is not required as project interventions will cause no harm to natural habitats.</p>	
<i>Conservation of Biological Diversity</i>	<p>Project activities will not have a negative impact on biodiversity conservation as within project design activities will ensure that the flora and fauna within the project area is</p>	



	conserved.	
<i>Climate Change</i>	The project does not have a negative impact on climate change. No project interventions are expected to contribute to release of gases responsible for CC and thus are not expected to contribute to GHG emissions.	
<i>Pollution Prevention and Resource Efficiency</i>	Project is not expected to generate any environmental pollution and aims for higher resource efficiency for better management of available natural resources.	
<i>Public Health</i>	The stability of ecosystem balance will contribute to the improvement of public health. Thus no adverse impact on public health related issues is envisaged.	
<i>Physical and Cultural Heritage</i> Implementation of the program contributes to the preservation of natural and cultural heritage	The activities envisaged by the Project are not implemented in such sites where there are physical and cultural heritage	
<i>Lands and Soil Conservation</i>	Project interventions will not create any damage to land and soil resources.	

Following the initial screening process the proposed project concept is expected to be Category C in accordance with Fund's ESP as it has no adverse environmental or social impacts.

There are not any cultural, traditional, religious or any other grounds in the Republic of Armenia and particularly in the project area that might result in differential allocation of benefits between men and women and naturally there is no need for further assessment.

As a member of the Council of Europe, the Republic of Armenia has ratified all the conventions and treaties on gender equality and human rights.

The number of other nationalities living in the project area is very few. Mainly Russians live in Fioletovo community and as project stakeholders they have been involved in the initial meetings and discussions on the Adaptation Fund, climate change adaptation and the program peculiarities held by EPIU. The objectives and activities of the project have been assessed positively by the community leaders and residents.

Everybody shared the idea that project activities would contribute to capacity-building of communities as a result of which it will be possible to focus more on climate change adaptation challenges addressed to the resilience of agricultural and natural ecosystems.

It is envisaged by the project to renovate already existing field roads that are in a very poor condition. These activities will not have a negative impact on natural habitats, do not pollute the environment and do not harm the soil. It should be noted that, as a result of the activities, the greenhouse gas emissions from machinery and agricultural machinery will be reduced, and in case of improved roads, the cars will not bypass them and the natural habitat and landscapes of the area will not be harmed.

The most damaged parts of the existing irrigation network will be repaired, in the result of which the land erosion, salinization and bogging processes the adjacent areas will diminish.

Solar water heaters will be placed on the roofs of the public sector buildings. Installation will have no impact on environmental pollution.

Non-heated greenhouses and solar dryers will be constructed in areas that will not cause any harm to natural and agricultural landscapes.

The project envisages application of new technologies and lightweight constructions, during which the soil will not be damaged and the environment will not be polluted.

Unidentified subprojects (USPs) will be identified during the preparation of the fully-developed project proposal to allow for adequate risk identification and impact mitigation and prevention, as well Environmental and Social Management Plan (ESMP) will be developed.

## **PART III: IMPLEMENTATION ARRANGEMENTS**

### **A. Describe the arrangements for project / programme implementation.**

The Programme is guided by the Intended Nationally Determined Contributions of the Republic of Armenia under UN Framework Convention on Climate Change approved by the RA Government Protocol Decision No 41, 10 September, 2015 and will be implemented over a free-year period, beginning in November 2017. The implementing entity (IE) for the programme will be EPIU, as the National Implementing Entity for the Adaptation Fund. Replicating the longstanding work and experience of EPIU in working directly with national stakeholders (public and private organizations, academy, NGO's), and considering past success of EPIU implementing Programmes at national and international level, the Government of the Republic of Armenia has explicitly endorsed this AF project to be executed by EPIU.

The Project Management Board (PMB) will be responsible for making management decisions for the AF project. In addition, the board will: i) undertake project assurance (monitoring and evaluation); ii) ensure performance improvement; and iii) ensure accountability and learning; iv) approve and closely monitor the multi-year and annual work plan to ensure its fulfillment

and that it contributes to achieving project objectives; (vi) approve the annual report, multi-year and final report.

The PMB will comprise of designated representatives from relevant ministries and representatives from local self-government bodies and EPIU staff. The Project Management Board will choose a member from its composition to serve as secretary to the PMB. The PMB will approve annual work plans and procurement plans, and review project periodical reports as well as any deviations from the approved plans.

The overall management of the AF project will be executed by EPIU staff as NIE.

The following implementation services will be provided by EPIU for the AF project:

- overall coordination and management of EPIU's NIE functions and responsibilities, and the facilitation of interactions with the AFB and related stakeholders;
- oversight of portfolio implementation and reporting on budget performance;
- quality assurance and accountability for outputs and deliverables at the project development phase, during implementation and on completion;
- receipt, management and disbursement of AF funds in accordance with the financial standards of the AF;
- information and communication management to track and monitor progress (financial and substantive) of project implementation;
- oversight and quality assurance of evaluation processes for project performance and ensuring that lessons learned/best practice are incorporated to improve future projects; and
- monitoring project activities, including financial matters, and preparing monthly and quarterly progress reports, and organising monthly and quarterly progress reviews;
- supporting the PB in organizing PB meetings;
- managing relationships with project stakeholders including donors, NGOs, government agencies, and others as required.

**B.** Describe the measures for financial and project / programme risk management.

**C.** Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy of the Adaptation Fund.

**D.** Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

**E.** Include a results framework for the project proposal, including milestones, targets and indicators.

**F.** Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund

Project Objective(s) <sup>3</sup>	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)

**G.** Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

**H.** Include a disbursement schedule with time-bound milestones.

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<sup>3</sup> The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

## PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

**A. Record of endorsement on behalf of the government<sup>4</sup>** *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

<i>Mr. Artsvik Minasyan, Minister of Nature Protection of the Republic of Armenia</i>	Date: August-04-2017
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**B. Implementing Entity certification** *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

<p>I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (“Intended Nationally Determined Contributions of the Republic of Armenia under UN Framework Convention on Climate Change”, “Second National Environmental Action Programme of the Republic of Armenia”, “Biodiversity Strategy and Action Plan of Armenia”, “National Strategy and Action Plan of the Development of Specially Protected Nature Areas of Armenia (SPNAs)”, “National Action Programme to Combat Desertification in Armenia”, “the Land Degradation Neutrality National Strategy”, “Community Agroresources Management and Competitive Project (2010-2020)”) and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.</p>	
<p><i>Name &amp; Signature Mr. Gevorg Nersisyan</i> Implementing Entity Coordinator</p>	
	<p>Tel. and email: : +37410 651631; info@cep.am</p>
<p>Project Contact Person: Samvel Baloyan, Anush Lokyan</p>	
<p>Tel. And Email: <a href="mailto:sbaloyan09@rambler.ru">sbaloyan09@rambler.ru</a>, <a href="mailto:anush.loqyan@gmail.com">anush.loqyan@gmail.com</a></p>	

<sup>6</sup>. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

## **ANEXES**

Annex 1 – Letter of Endorsement



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**ՆԱԽԱՐԱՐ**  
 MINISTRY OF NATURE PROTECTION OF THE REPUBLIC OF ARMENIA  
**MINISTER**  
 МИНИСТЕРСТВО ОХРАНЫ ПРИРОДЫ РЕСПУБЛИКИ АРМЕНИЯ  
**МИНИСТР**

0010, ք. Երևան, Հանրապետության հր. Կառավարական 3-րդ տուն  
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№ 1/37/11672  
 « 18 » « 07 » 2017թ.

**Letter of Endorsement by Government**

The Adaptation Fund Board  
 c/o Adaptation Fund Board Secretariat  
 Email: [Secretariat@Adaptation-Fund.org](mailto:Secretariat@Adaptation-Fund.org)  
 Fax: 202 522 3240/5

Subject: Endorsement for “Sustainable management of adjacent ecosystems of specially protected nature areas of the RA and capacity building in communities”

In my capacity as designated authority for the Adaptation Fund in the Republic of Armenia, I confirm that the above national project/programme proposal is in accordance with the government’s national priorities in implementing adaptation activities to reduce adverse impacts and risks posed by climate change in the Armenia.

Accordingly, I am pleased to endorse the above mentioned project/programme proposal which will be implemented with the support from Adaptation Fund. Once it is approved, the project/programme will be implemented by SA “Environmental Project Implementation Unit” of the Ministry of Nature Protection of Republic of Armenia.

Sincerely,

Artsvik Minasyan  
 GEF Political and Operational Focal Point

G. Nersisyan  
 +374 10651631

